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W. E. Crosby.....Forestry Editor

Publishing Office

71 Columbia St.....Tel. MA. 1626

NEW YORK (17)

Nard Jones.....Associate Editor
370 Lexington Ave. (120 East 41st St.)
Tel. Murray-Hill 3-9295

PORTLAND (4), ORE.

Chester A. Fee.....Associate Editor
534 S. W. 3rd Ave.
Tel. Beacon 6348

NEW ORLEANS (12)

Wm. J. Krebs.....Southern Editor
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305 Baronne St. .....Tel. Magnolia 4808

VANCOUVER, B. C.

Charles L. Shaw.....Canadian Editor
675 W. Hastings St.....Tel. Marine 1520

CHICAGO (37)

Daniel V. Bergman.....Regional Editor
5735 So. Woodlawn Ave. Tel. Plaza 9307

SAN FRANCISCO (5)

Stuart Leete.....Regional Editor
121 Second Street.....Tel. GA. 5887

LOS ANGELES (13)

Arthur Ponsford.....Regional Editor
124 W. Fourth St.....Tel. MUtual 8194

DENVER (2), COLO.

Karel Wegkamp.....Regional Editor
711 Colorado Bldg.....Tel. Keystone 6051

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EDITORIALS

Opportunity for Research

VANNEVAR BUSH, vice president and dean of engineering at Massachusetts Institute of Technology, and the Number One scientist of World War II, not long ago took the military to task for its positioning of scientists in the echelons of strategy.

"Industry," he said, "found out long ago that it was unwise to put research below the production department."

In the pulp and paper industry most large companies have put the research department on a par with the production department, although there are a few exceptions still. In the matter of research on the *end-use* of paper products, however, the industry has not attained the same degree of modernity. There is still a great deal of dependence put on the paper and paper product *consumer* to handle research.

In postwar competition it is a situation which cannot long obtain without danger. Food processors and packers are selling food. Beverage folks are selling beverages. They do not want the burden of selling glass or tin—or paper and paperboard. As time goes on, they will be less inclined to accept even a part of that burden.

Toast to U. S. Industry

A SWEDISH pulp and paper industry executive wrote us this—after a tour of United States:

"I become more impressed every day by the bold and practical-aiming ways of American industrial research. And the overcoming of great difficulties. Of course, you can always 'excuse' yourself by crediting 'great resources' but it takes something else on top of that."

Glad to Be of Service

INTERPRETIVE and statistical material which we publish annually in our North American Review Number has interested many persons in many countries.

We are flattered to know that this Review Number was the basis for an important address made by Philip H. Prior at a General Conference of the British Pulp and Paper Industry Technical Section in Edinburgh, Scotland.

	Page
Another Ontario Mill	16
Marathon Promotions	16
An S. D. Warren Idea	17
New Modern Mill	18
Rayon Expansion	21
Search for Fibers	22
Timber Bamboo	25
Hardboard Industry	27
Westminster Expands	28
Southern Wood Report	31
First Management-Union Safety Meeting	33
Pulpwood Salvage and New Machinery	36
Re-Logging in Oregon	64
Champion's Managers	46
Bleaching Trends	48
New Power Saw	50
Spokane Mill Project	52
Production Records	54
Fibreboard Expansion	40

ANOTHER BIG KRAFT PULP MILL IS PROJECTED FOR ONTARIO

Another big kraft pulp mill for Ontario, to be located at Blind River, on the north channel of Lake Huron a few miles west of KVP's new Espanola mill, is in prospect.

Acquisition of J. J. McFadden Lumber Co.'s assets by the Huron Forest Products Co., a holding company, for some -2,000,000, may lead to a decision to build the pulp mill.

Timber cruisers are now surveying the forest areas included in the deal to determine the pulpwood potentialities, and the company's decision will depend on the result of this examination.

If the mill is built, it presumably would make 250 to 300 tons a day of bleached sulfate pulp, using mostly white pine.

Principals in the Huron organization include Hugh Mackay of Montreal and Rothesay, N. B., president; J. S. D. Tory, K. C., Toronto lawyer and industrialist; Sydney Ferguson, president of Mead Corp, and H. T. Mead of the Mead Corp., both of New York; M. W. McCutcheon, director of Canadian Breweries, Ltd., and Angus Corp. of Toronto; J. Brookes Beveridge, Montreal chemical engineer, formerly associated with the Dryden Paper Co., Acer McLernon Co., Montreal, and the Lake Sulfite Co.

E. P. Taylor, Toronto industrialist and president of Argus Corp., who headed the group which recently acquired the Chemainus, B.C., sawmill of Victoria Lumber Co. and various other sawmills organized into B. C. Forest Products, Ltd., under H. R. MacMillan management, is reported to have a small interest in Huron. Other Canadians on the Huron board include C. F. W. Burns of Toronto, J. H. Thomson, Toronto, secretary; and J. A. Weldon, Montreal, treasurer.

Mr. Mackay is also president of W. C. Pitfield & Co., Montreal financing house. He is also a director of the Donnacona Paper Co. and Rolland Paper Co.

In Toronto the proposed new development is interpreted as additional evidence of fruition of the policy initiated four years ago by the Drew government in Ontario which is based on the theory that timber holders in that province should make an effort to utilize them and not hold them idle indefinitely.

Whether or not this program has been directly responsible, Ontario has been the scene of the most active pulp mill development on the North American continent in recent years.

For instance, Marathon Paper Mills of Canada will soon have in operation its new mill at Marathon on the northern shore of Lake Superior; Brompton Pulp & Paper Co., has its Red Rock mill in production; Kalamazoo Vegetable Parchment Co. has converted the old Spanish River Abitibi mill at Espanola and is now operating and, finally, Kimberly-Clark Corp., is proceeding with a $15,000,000 mill and townsite project at Terrace, near Schreiber.

Huron Forest Products, Ltd., was incorporated in Ontario last June for the purpose of acquiring the lumber business, sawmill operation and forest holdings at Blind River previously owned and operated by J. J. McFadden Holdings, Ltd., J. J. McFadden Lumber Co. and the Mississaga River Improvement Co., all of which were wholly owned and controlled by J. J. McFadden of Blind River. In addition, with a view to processing pulp and sawing lumber as a joint operation, the new Huron company has acquired all shares of an existing corporation of the same name, which was owned by the Mead-Johnson interests and the name of which is being changed to Huron Pulp & Lumber Co., Ltd. The old company, under Mead-

THESE WISCONSIN MEN HAVE BEEN PROMOTED to key positions by Marathon Corp., according to announcement by D. CLARK EVEREST, President of the company (left to right):

JOHN STEVENS, JR., of Wausau, who is now President of Marathon Paper Mills of Canada, with Mr. Everest assuming position of Chairman of the Canadian subsidiary. Mr. Stevens is Vice President of the parent company.

LEO E. CROY, of Neenah, now Executive Vice Pres. in charge of all Marathon operations in U. S., except Chemical Division. He was Vice Pres. in charge of sales.

ROY J. SUND, of Neenah, now Vice President in charge of all manufacturing in U. S., except chemicals. He was Production Manager of converting plants.

DONALD A. SNYDER, of Menasha, who was appointed Director of Sales. He was former Manager of Food Packaging Division.

Johnson ownership, had held pulpwood cutting rights along the Mississaga River but had been inactive since 1943.

Would Cost $6,000,000

If the mill is built, according to Toronto report, an outlay of at least $6,000,000 would probably be made to finance it. No public stock issue is contemplated at present.

The existing McFadden sawmill was built 18 years ago by Carpenter Hickson Co. and was considered at that time to be one of the most modern in eastern Canada, with a capacity of 100,000,000 bd. ft. annually. It has not been in full operation for several years, due in part to labor shortage.

Just what effect the recent price increase on Canadian-manufactured bleached sulfate pulp, bring current prices to $103.40 per ton, will have on increasing exports from Canada to the United States is a matter for conjecture.

Denies Sale of KVP

Officials of Abitibi Power & Paper Co. at Toronto have issued a denial to reports that the long-idle Abitibi mill at Sturgeon Falls, near North Bay, Ontario, has been sold to Kalamazoo Vegetable Parchment Co.

KVP acquired another Abitibi mill, the former newsprint producer at Espanola, and has a kraft mill in operation there now.

Louisiana Producing Only 47% of Timber Potential

Twenty-five years ago Louisiana, State Forester Massey Anderson reports, conservationists were predicting that there would be no merchantable timber left in Louisiana by 1940.

Today, he says, surveys show that Louisiana's timbered lands are producing only 47% of their potential, the state is still growing 82,000,000 cu. ft. of timber a year in excess of use.

In large part responsible for that showing, the forester says, is the work of the state forestry unit created back in 1922 to prevent fires and assist in good forestry practices.

How successful the program has been may be judged by Mr. Anderson's report that some 475 operators in the state pay an annual wage of $50,000,000 to some 40,0000 persons in the "wood" business, not including a large number indirectly employed, such as furniture makers and carpenters.

The forest products industry is now third in the state, exceeded only by petroleum and agriculture, and 56% of the state area is still covered with its "only replaceable resources." The department plans to help convert 1,500,000 acres of submargin land to forests by selling seedlings to farmers.

AUBREY K. NICHOLSON, was on July 1 elected the new President of Hollingsworth-Vose Corp., West Groton, Mass. Formerly Vice President, Mr. Nicholson was chosen to fill the place vacated by the death of Louis E. Vose, long-time head of the firm, last year.
Other new officers include Robert W. Lennox, Vice President, formerly Treasurer; and Bruce Lennox, Treasurer, formerly Assistant Treasurer. Company announcement indicated that there would be no change in policy as a result of the election.

S. D. Warren Co. Devises Novel Means Of Limiting Production Time Loss

A novel means of limiting loss of production time due to machinery slowdown caused by manufacture of abnormal heavy basis and subnormal basis weights to the consumer whose specification call for those weights, has been devised by the S. D. Warren Co., of Boston, Mass., whose mills are in Maine. Basis 50 to basis 60 being the normal weights for uncoated papers and basis 70 to basis 90 the norm for coated-two-side paper, the company applies a mathematical factor to customer tonnage allotments.

The tonnage allotment itself is translated into machine hours at normal running speeds of paper machines producing normal weights. The required slowdown of the machines for the non-standard heavy or light weight specifications of the consumer are then computed, and production for the particular customer is limited to the tonnage which may be produced in the allotted time.

For example, if a particular consumer, alloted 1,000 minutes of the time of a paper machine which can produce normal weights at the rate of 600 feet per minute (or 600,000 feet of the machine's linear width within the allotted time), decides to order a light weight paper which forces a machine speed reduction to 500 feet per minute, he receives only 500,000 feet of the machine's linear width.

Thus, it may be seen that loss of area through machine slowdown due to consumer specification is not shared by all customers, but is carried entirely by the customer whose specifications cause the loss.

Newsprint Prices Are Not Satisfactory

Although Canadian newsprint companies lost little time in increasing prices to compensate for the loss of the U. S. dollar premium, they are not satisfied with the $6.80 per ton advance ordered to meet that specific situation and are currently negotiating for a still higher price.

The present U. S. price of $73.80 for Canadian newsprint is at its highest level since 1925, but mill operators contend that at least $80 per ton should be charged to meet rising production costs.

Just before OPA was threatened with extinction Canadian mills were pressing for a higher price, so that while the difference in exchange rate has been offset by the $6.80 increase, the basic question of adjusting prices to meet costs is still unsettled.

Sonoco Expands

Construction of a new two-story concrete and brick engineering building measuring 140 by 102 feet is being effected by the Sonoco Products Co., Hartsville, S. C.

An Ultra Modern Mill Now Operates In New Jersey for Personal Products

New Filtration plant (left) and Power House at Personal Products Corp., Milltown, N. J. Infilco gravity type filters provide water of zero color-turbidity-softness. Following article describes water purification and Superthern boiler system.

During the last two hectic war years one of the most modern paper mills in the world was being built in the rolling countryside near Milltown, New Jersey—the new mill of Personal Products Corporation.

Last February 4th the two-machine mill went into full operation on the manufacture of facial tissue, absorbent creped wadding, and other specialties. Now, as we go to press it is installing equipment in a modern 112 by 500-foot addition which houses the converting department.

Getting a paper mill built during the war years called for almost miraculous cooperation on the part of WPB, the machinery manufacturers, and the personnel of Personal Products. Delays, of course, were inevitable and under peace-time conditions the mill would have been in operation much sooner. But that it is now in operation so soon after the final cessation of hostilities is a tribute to the persistance of the management, the recognition of the paper machinery men in WPB of its essentiality, and the ingenuity of the equipment manufacturers involved.

So in talking about Personal Products' new mill, Robert A. Monteith, director of the newly formed paper division of the company (which is an affiliate of Johnson & Johnson) is careful to give credit to a number of people.

"To so many," he says, "that I wouldn't want to try to list their names. I might omit somebody."

It was John A. Underwood, president of Personal Products and a director of Johnson & Johnson, who, in 1942, recognized the need for the completion of the project during the war years to round out the company's operations and make the company self-subsistent in the manufacture of its specialty papers. A Kentuckian by birth, Mr. Underwood came to Personal Products four years ago and in that period the company's volume — now approaching $20,000,000 a year—has doubled. Those in direct charge of the building and operation of the new mill are quick to give Mr. Underwood credit for complete freedom of action and continual support in the pinches that are a part of any such construction these days.

Walter J. Metts, vice president in charge of manufacturing for the company, built the original Personal Products group of buildings in 1940, and was in charge of the building and construction and contracting for the new mill. A director of the company, he was for many years a J & J general superintendent at New Brunswick.

Mr. Monteith, recently made a director of the company, joined the company in March of 1942 to take charge of the mill project whose plans had been formulated. Prior to that time, he was engaged in paper mill management and operation for some 12 years. Until now he has concentrated on getting the project completed, but now that operations have started he will extend his activities to merchandising the company's newest product, facial tissue, and the supervision of the paper division's operations.

The new product was until recently a trade secret but now the merchandising world knows it as "YES," a cleansing tissue with a single fold in an unusual container designed by the art department of N. W. Ayer & Son, Inc., and executives of Personal Products. The company also manufactures Modess sanitary napkins, Meds tampons, and Co-Ets cotton squares. With the new mill, it is substantially self-subsistent in the manufacture of creped specialties and all component parts of its finished products.

Laurence P. Thompson joined Personal Products in January, 1945, as superintendent of the paper mill operation, his arrival coinciding with the delivery of the paper machines and other equipment so as to get the benefit of his operational experience. He was formerly superintendent of the Marinette mill, a Scott division at Glens Falls, N. Y. Before that he was technical director of the Glens Falls mill, when it was under the management of International Paper Co. "His experience got us off to a smooth, fast start," said Mr. Monteith when PULP & PAPER INDUSTRY visited the mill recently. Thompson supervised the installations in collaboration with Alvin H. Johnson & Co., Inc., 415 Lexington Ave., New York, paper mill engineers, who drafted the complete plans for installations as well as the general mill engineering.

Equipment

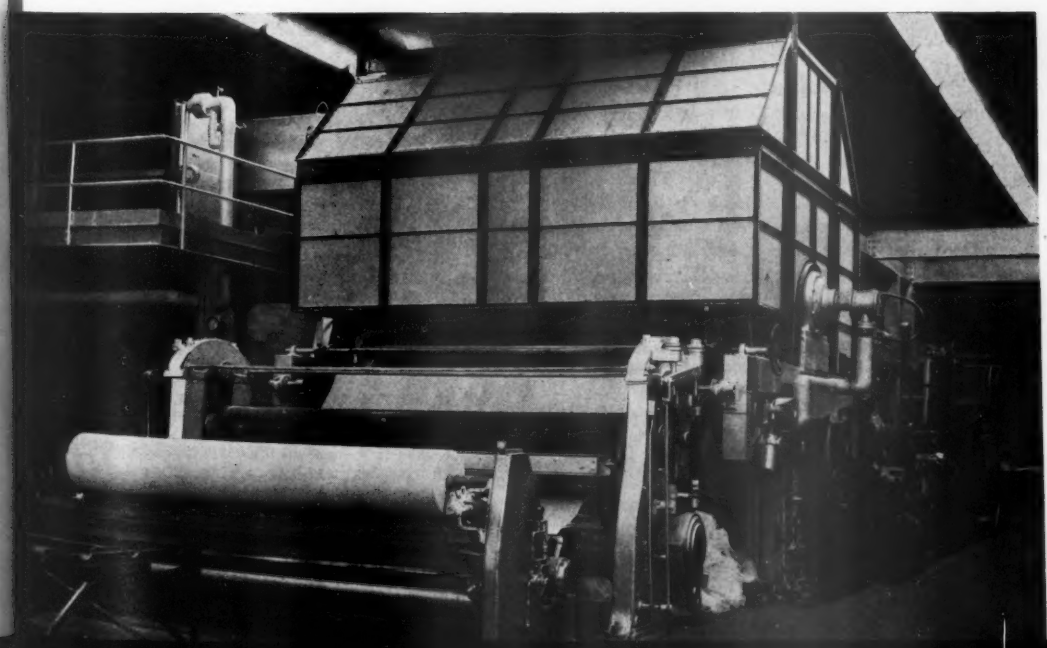
Heart of the new mill is the dual installation of two high speed 142-inch Yankee fourdriniers manufactured by Bagley & Sewall of Watertown, N. Y. The management will admit to no more than a speed of 1,000 feet per minute, but obviously the machines are very considerably in excess of that mark.

The high pressure Yankee dryers were engineered and supplied by Pusey and Jones, Wilmington, Del.

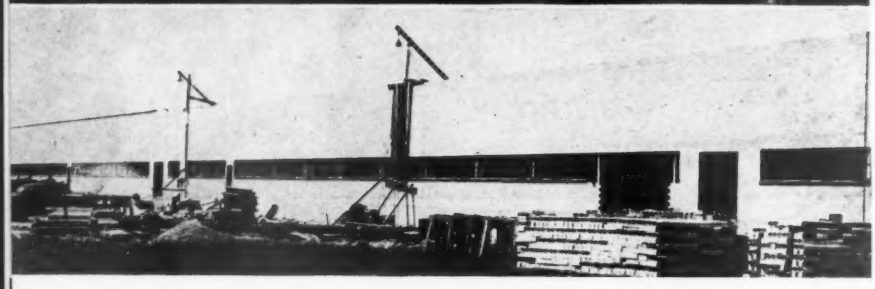
Downingtown Manufacturing Co.,

PERSONAL PRODUCTS CORP. executives look over one of two new paper machines. Left to right, these men are: ROBERT MONTEITH, Director of Paper Division, Johnson & Johnson, and Manager of Personal Products Corp.; W. J. METTS, Vice President in Charge of Manufacturing; LAURENCE P. THOMPSON, Superintendent of the Milltown plant, and JOHN A. UNDERWOOD, President of Personal Products.

Attractive Colonial style executive offices (left) and garages (right) greet the visitor at Milltown, N. J. Reception hall is furnished like a private mansion



The two new paper machines stand side by side in the new plant of Personal Products at Milltown. They are identically equipped. Each is a Bagley & Sewall 142-inch Yankee Fourdrinier. This view from dry end shows Ross Engineering Corp. hood which covers high pressure Yankee dryers engineered and supplied by Pusey & Jones.



Above is view of paper mill of Personal Products Corp., as seen through entrance gate. A superintendent's "penthouse" is seen near the flag, above the mill. Converting plant is long building to left. Below, a view of the extension to paper mill now completed. This picture was taken while it was under construction.

Downingtown, Pa., engineered and built the high speed suction press units for removal of water prior to drying.

The stock preparation equipment has been supplied by Dilts Machine Works, Fulton, N. Y. This includes refining and hydration by high speed cycling Hydrafiners.

Stock chests, wire pits, and white water tanks have been engineered and installed by Stebbins Engineering Co., Watertown. These are tile lined for cleanliness and easy wash-up.

Water filtration and water stock recovery are extremely modern and efficient. The water supply comes from Weston Mills Pond, serving the city of New Brunswick, and is filtered through high speed Infilco gravity type filters at 700 gallons per minute. Through this system comes water of zero color, zero turbidity, and zero softness.

The recovery system is two Sven Pedersen filtration systems which were engineered and installed by Bulkley Dunton Pulp Co., New York, and these were synchronized with a special Johnson white water system. The percentage of fiber discharged in the effluent is reduced to a remarkable minimum, and the system is so closed that the mill operates on about 150 gallons per minute per machine, and on the average on less than 10,000 gallons per ton of paper produced.

Power is supplied by 650 hp Erie boilers of 200 rating using oil with standard coal conversion equipment. The steam system was installed by Ross Engineering and is a supertherm delivering hot water at 375 degrees Fahrenheit to heat exchangers at each operation where steam is flashed off.

Nash Engineering Co., South Norwalk, Conn., furnished the main pumps throughout. Transite from Johns-Manville is used for piping to eliminate rust and slime.

The complete air and ventilation system was installed by the J. O. Ross Engineering Corp. Plans are now being drawn for the main machine room air-circulation.

The mill building and facilities and design are as functional and modern as the equipment. Buff color satin-finish tile inside and out, fluorescent lighting in a windowless housing, white overalled and jacketed employes, are some of the extra touches which make this set-up unusual.

The mill building is 200 by 85 feet in a single span and all operations are on one floor, including the new converting unit. There is fast internal transportation by electric truck in these modern buildings on a landscaped 60-acre track near U. S. Highway No. 1.

The main executive offices of Personal Products are as unusual as the mill, but in contrast to it, being of Colonial design. The first-time visitor realizes at once that he is calling on a company of imagination, as the foyer is decorated in period furniture and resembles the reception hall of a private mansion. Easily accessible from larger centers, the operations, both executive and mill, are in a rural setting, an example of the definite modern trend toward decentralization of manufacturing from crowded and ill-favored industrial centers.

Says Substitute Pulps Needed for Newsprint

A continuing shortage of newsprint was forecast in an article in the Chicago Tribune July 14. A nation-wide newspaper campaign to collect waste paper was suggested editorially the same day as a measure which might alleviate the situation.

"The Canadian spruce," said the Tribune article, "which for more than 50 years has been the world's prime source of pulpwood for the manufacture of newsprint, cannot continue to meet growing American demand. Forestry engineers and Tribune pulp mill (Ontario Paper Co.) executives predict that the shortage felt today by newspapers and other consumers is the beginning of a paper famine which will not be overcome until substitute pulp materials are found.

"Experts who have studied forest survey statistics believe that the newsprint industry in Canada has about reached the limit of expansion if it is to maintain a perpetual supply of spruce pulp. They doubt that the accessible spruce limits could support many additional machines. Already some spruce areas are being cut faster than they can perpetuate themselves by natural reforestation."

Congressman Starts Newsprint Price Campaign

Canadian newsprint men are naturally interested in the proposal of Representative Sikes of Florida for an investigation into the possibility of monopolistic price practices, but they feel that the congressman's reference to the "considerable material submitted by publishers and printers" betrayed his hand, and that his move was actuated by a desire on the part of certain American publishers to resist the move already under way for an advance in newsprint prices.

St. Regis Advertisements Addressed to "Influences"

An institutional advertising campaign in 10 magazines, including PULP & PAPER INDUSTRY and three business newspapers has been launched by the St. Regis Paper Co.

Kenneth D. Lozier, vice president of the subsidiary St. Regis Sales Corp., is in charge of the company's advertising and public relations.

While termed "institutional," the ads in the new St. Regis campaign have a definite selling theme, and are addressed to management and "influencing factors" in the 21 major industries served with St. Regis products, telling them about the size and scope of the company's activities.

Rebuilding Machine

W. A. Loew, president of the Falulah Paper Co., Fitchburg, Mass., has announced that an 80-inch J. H. Horn cylinder machine, out of use for several years, is being rebuilt for the mill by Union Machine Co., also of Fitchburg. The machine will produce coated blanks as part of Falulah's program for overall increased production.

Worldwide Expansion in Rayon Will Draw Upon Wood Pulp Supply

A worldwide rayon manufacturing expansion is underway with increasing use of wood pulp as a raw material.

It actually starts, however, from the lowest level since 1936, for the world's rayon production, according to Rayon Organon, was only 1,530,000,000 lbs. in 1945. 46% under the record 1941 level and 26% under 1944. Output in America decreased but there were serious declines in Europe and Asia.

According to a New York financial writer, Howard Carswell (World-Telegram), U. S. 1946 production will total 855,000,000 lbs., which compares with a figure of 792,000,000 in 1945.

Entry of Latin America in this field is most interesting.

The big question mark is, where are all these new plants going to get their raw material? It assuredly means tougher competition for paper mills for wood pulp supply in many parts of the world.

In the domestic field most of the expansion appears to be going into acetate filament and in staple fiber. The acetate type is going more and more into fabric blends and unusual dyeing effects.

American Viscose Corp. is said to be adding 100,000,000 lbs. a year to its capacity and has in prospect a new plant at Radford, Va. Celanese Corp. of America is expanding in the acetate rayon at Rock Hill, S. C. In Mexico Celanese Mexicana has an acetate yarn plant underway in Jalisco and, with Mexican interests, has a new small viscose yarn plant.

Tennessee Eastman Corp. plans to enlarge its acetate facilities near Kingsport, Tenn., and Industrial Rayon Corp. in Cleveland—a 100% user of wood pulp—similarly figures to expand in viscose.

E. I. du Pont de Nemours & Co. plans a new plant at Orange, Tex., according to a published report in New York.

The Drackett Co. will build a new protein fiber plant in Ohio.

Latin America Enters Field

In Brazil a 20,000,000-lbs.-a year plant for making viscose is underway near Sao Paulo by Co. Nirto Quomica Brasileira.

The big Matarazzo interests contemplate a new mill in Brazil of 16,000,000 lbs. annual capacity; in Argentina a viscose plant is underway and in Columbia at Barranquilla. Also in Brazil the industries Votorantim are building viscose staple fiber capacity at Sorocaba.

In the Argentine Productora de Rayon "Ducilo" is said to be doubling its rayon output.

Peru's first rayon plant will be operated by Rayon Peruana. In Venezuela, Rayon Venezolana intends to build at Caracas. For the first time Cuba has a rayon producer in Co. Rayonera Cubana, with an annual capacity for 10,000,000 lbs. of viscose filament and staple fibers.

In Canada the expansion will be notable, and also in England. The British are reported to be putting a plant in northern Ireland, and another one near the Scottish border.

Australia, Egypt and India have rayon projects underway. The one producer in Turkey will enlarge.

WINSTON SCOTT, whose appointment as Assistant Resident Manager of the Shelton, Wash., Division was recently announced by Edward Bartsch, President of Rayonier Incorporated.

Mr. Scott was promoted from Chief Chemist, a position he had held from 1936. He has been at the Shelton mill for 16 years since graduation from University of Washington. Home town is Chehalis, Wash.

George Cropper is Resident Manager at Shelton.

Owen at Tuscaloosa

Lt. Murphy Owen has been discharged from the Army, and has returned to his work in the Chemical Laboratory of Gulf States Paper Corporation, Tuscaloosa, Ala.

Public Relations Plan For this Industry

Last February at the annual meeting of AP&PA and TAPPI in New York, members of the industry took a straight look at the public relations problem and AP&PA assigned a committee to study it.

Last month AP&PA members received an eight-page brochure describing the committee's suggested program and were asked for comment. Aims of the program are three: To gain public understanding, to supply the industry and the public with basic information, and to gain secondary benefits in the way of improved employe-employer relations and wider acceptance of new paper products. The three-year "starting program" would cost $187,000 for the three years.

Last of Weyerhaeuser Founder's Sons Passes

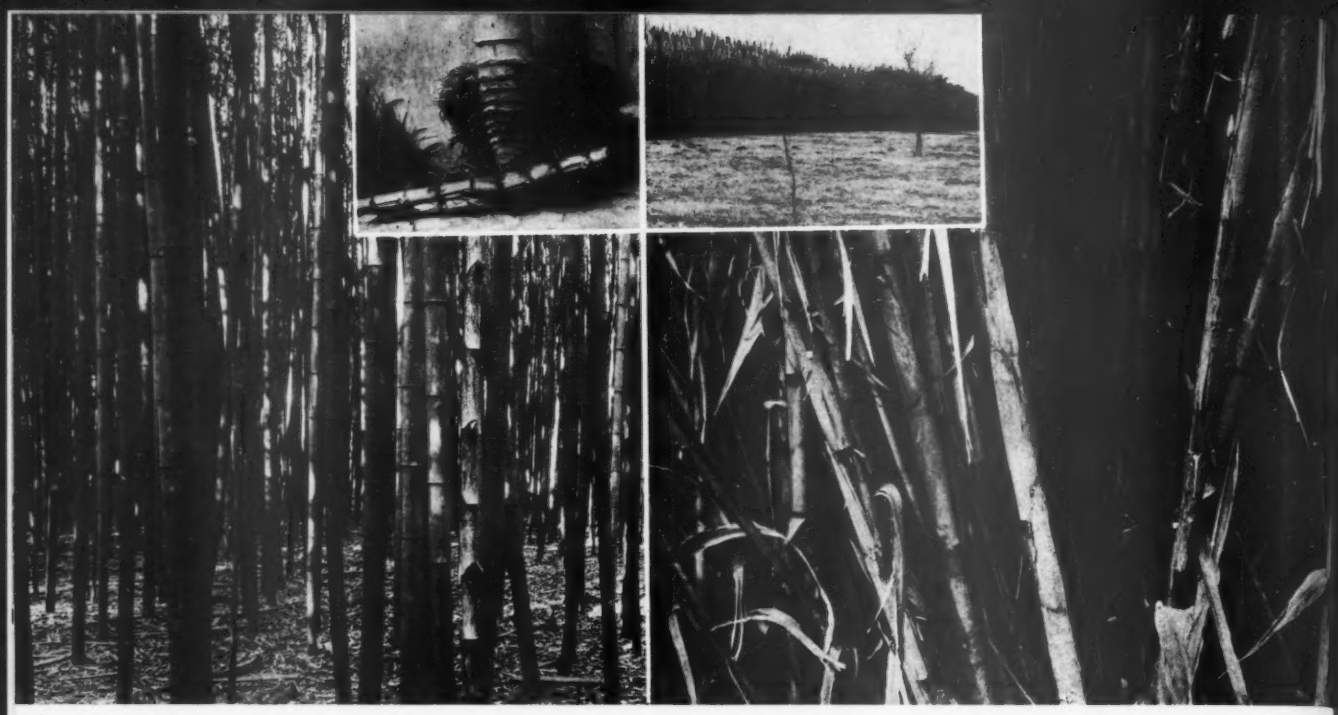
Rudolf M. Weyerhaeuser, last survivor of the four sons of Frederick Weyerhaeuser, founder of vast forest products industries in Minnesota and on the Pacific Coast, recently died of pneumonia in St. Paul. He was 78.

Mr. Weyerhaeuser was president of Potlatch Forests, Inc., of the Northern Lumber Co., of Edw. Rutledge Timber Co. and of the First National Bank, Cloquet, Minn.

LIEUT. ROBERT L. CANTINE, discharged from U. S. Navy after four years, returns to Sales Department of Martin Cantine Corp., of Saugerties, N. Y., and also will "understudy" his father, Holley R. Cantine, president of the coated papers manufacturing company.

Lieut. Cantine served on minesweepers in Atlantic and Pacific and during past year cleared Japan's coastal waters of mines.

Martin Cantine Co. is completing $150,000 improvement program, which includes rebuilding and reconditioning five coating machines and installation of new 500 c.p. boiler and new micro-jet Waldron coater.



Left: Timber bamboo in Barber Lathrop Plant Introduction Garden, Savannah, Ga.

Right: Closeup of Arundel Donax cane, grown in City Park, New Orleans, for papermaking experiments (see cover picture).

Small insets are: left, timber bamboo rhizome-root system, and, at right, view from distance of the Donax cane in New Orleans.

PAPER INDUSTRY'S "ELDORADO"— A NEW ECONOMIC SOURCE OF FIBER

Many new and remarkable synthetic fibers are made from other materials than wood pulp. Fibers have been produced from eggs, seaweed, chicken feathers, whale blubber, cow's milk—according to a recent article in one of the general circulation magazines.

Just once in a while it might pay for the pulp and paper industry to take a look at what the other fellows are doing.

A widespread search is being conducted today for new sources of fiber supply and, coincidentally, for suitable filler or substitute raw material for the pulp, paper and fiberboard industries of North America.

Paper and paperboard reached an all-time record high for peace-time production during recent months—yet demand is still far in excess of production volume or even capacity. Building board and insulating board fields have not only broken all previous records but seem headed for heights that had never been dreamed of, before a fuel-rationed wartime populace became insulation-conscious.

Development of resins for wet and dry strength and improved pulping and bleaching processes have made it possible, already, for many producers to begin using less desirable wood species or other less valued fibers.

For more than five years now, the U. S. pulpwood production has been at a rate 50% higher than in prewar years. But it still isn't high enough to meet demands for paper, fiberboard, rayon, plastics, etc.

The projected expansion of pulp production in the next three years for the United States and Canada is between 1,750,000 tons to 2,000,000 tons annually—virtually all of this by sulfate process which can utilize the less valued fibers more readily. This is over a present capacity of about 16,500,000 tons. Even this may not be enough to meet demand—and many trained observers are wondering where the wood is coming from for even this expansion.

The answer is in three parts, in this order of importance, according to a large number of experts interviewed by PULP & PAPER INDUSTRY.

1. Increasing and improving production in present commercial forest stands. In a future issue of PULP & PAPER INDUSTRY, we will publish an article enumerating some of the things actually being done by industry to accomplish this goal. Fire protection, of course, is one of the principal influences for better production. In passing, it may be stated that industries have discovered even greater potential wealth of resources in second and third growth timber

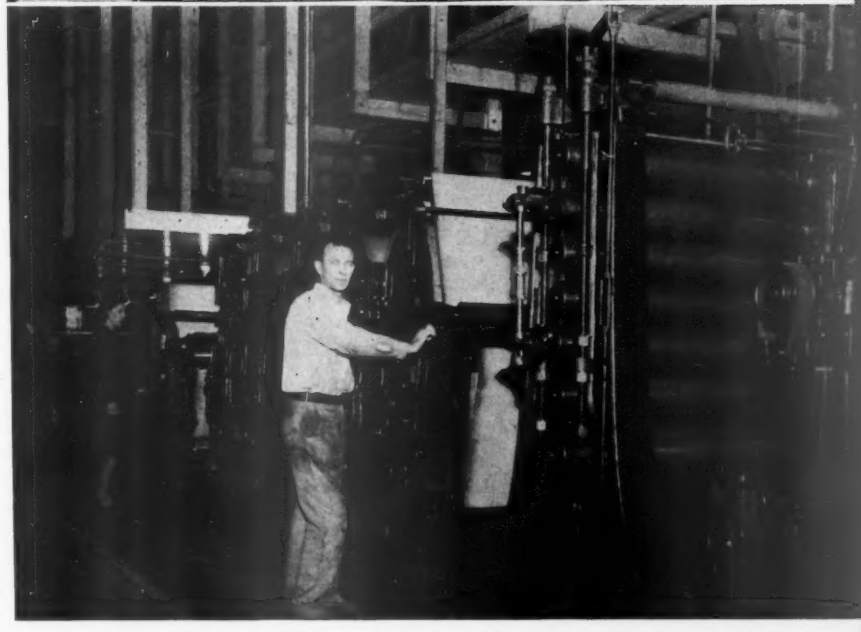
OUR COVER PICTURE

● shows Donax or reed cane. as it grows in City Park in New Orleans, where it has been especially cultivated for papermaking experimental purposes.

When TAPPI holds its big meeting for the alkaline division of the industry in New Orleans' Hotel Roosevelt, Oct. 14-16, some of the delegates will probably have a chance to take a little run out to the park and see how this cane grows.

At Herty Laboratory at 510 River St., Savannah, Donax cane has been made into 55 lb. bleached bond paper as well as unbleached board. It has possibilities as an extender or auxiliary supply of fiber—and certainly these days this industry cannot turn up its nose to any and all possible economic sources of fiber supply, as the article on this page relates.

The roots left when this Donax cane in New Orleans was cut last winter produced an excellent stand for a second cutting.



BRUCE SUTTLE, Director, Herty Laboratory, and D. A. Bisset, Chief Scientific Aide, Savannah Gardens, demonstrate for PULP & PAPER INDUSTRY the size of a 45-day old timber bamboo. Their hands won't circle it.
Lower view is of Herty Lab's Pusey & Jones Fourdrinier experimental machine with 33-inch wire (31-inch trim) on which test will be made for tissue from bamboo pulp. Many other tests of papers mentioned in the article on this page were made on this machine. It has nine dryers and 7-roll calender stack.
Herty Foundation, owned by Georgia state, conducts secret tests for industries at $100 a day. Its board is composed of Georgia business men headed by Chairman Charles S. Sanford, Savannah banker.
Mr. Suttle is a veteran of 37 years in Southern mills at Canton, N. C., Bogalusa, West Point, Va.; Bastrop, La.; Crossett, Ark; Hodge, La.; and St. Mary's, Ga., as pulp mill superintendent and later, general superintendent at two mills. He also worked under the late Dr. C. H. Herty in the Savannah lab during the mid-30's, returning in 1942 as director.

than in the virgin stands.

2. Utilization of less desirable or less common species of wood. Use of low grade Douglas fir logs and waste in the far west; of jack pine in Canada; of birch and beech in the east; of "poppel" or poplar in the midwest and of hardwoods in the south promises to virtually revolutionize pulp and papermaking. It already had successfully been introduced in a number of mills and much of the expansion previously mentioned is based on this type of material. The Asplund defibrating machines and various new processes and bleaching have made much of it possible. Trial runs on all these species, and even willow, alder, sugar berry, camphor wood, scrub oak, etc., have been made in laboratories in Madison, Wis., Savannah, Ga., and elsewhere.

3. Use of fibers other than those grown in trees and of fillers for paper ranging all the way from starches to certain kinds of earth. Frankly, in the opinion of many trained observers in this industry questioned by PULP & PAPER INDUSTRY, this is the least attractive of the three methods mentioned for increasing the raw material for pulp. Many leading technical men in this industry have given a great deal of time to studying the possibilities of agricultural waste material. The annual meeting of TAPPI's fibrous agricultural residues group in Peoria, Ill., has been well attended, indicating the urgency and importance of the subject. But this field is not generally attractive because none of these other fibers can be produced on anywhere near the scale of wood in relation to area or acreage used.

As for fillers—many of them are expensive. The starch industry finds better customers than paper mills, but coatings and starches have become necessities today for certain fields of paper and board-making

And the future outlook for newspapers is so dark as regards its one inexpensive but now "rare" raw material (other than ink)—that is, newsprint—that some observers say relief will only come when someone develops a cheap and adequate filler for newsprint.

There has been a lot said and published of recent date about other fibers than those obtained from wood, meaning sugar and other cane or reeds, rice stalks, soy bean stalks, bamboo, cotton stems, cotton linters, esparto grass, etc. Just what is the status of these secondary fibers? Here, briefly is a summary of some of these developments.

A rice stalk plant to make alpha cellulose has been built in Mexico City; the Germans developed a plant to use rush and reeds in Rumania; esparto grass production in Tunisia for England is again picking up after almost ceasing entirely; bamboo makes a paper pulp in Argentina, India, Brazil, Japan and China; paper has been made from bagasses in Hawaii and Martinique, and from corn stalks in Iowa. A new bamboo using plant is being built in Columbia by Container Corp.

But it must be noted that very little of this is being done in nations which have great coniferous forests —the U. S., Canada, Scandinavia and Russia.

A great many veteran papermakers today will recall the excitement caused when an Iowa plant started

making paper from cornstalks over a decade ago. We are informed this plant still operates in a modest fashion but it is unimportant.

Trees still can produce many times more fibers in a given area than any of the other plants.

Granted that these various stalks and other vegetable matter may never become a really important source of fiber compared with trees, they may, however, be developed into an auxiliary supply or an extender. It is this latter possibility which has spurred a renewed and active interest in experiments with bamboo, sugar cane or other bagasse, soy bean stalks, cotton stems, etc.

White Paper from Bamboo?

There is a possibility that white paper may be made from bamboo. Excellent results of test runs at Herty Foundation laboratory in Savannah are reported to have caused a big paper industry to consider growing bamboo in Texas for commercial purposes. "Timber-type" bamboo doesn't need re-planting and, selectively cut, yields 9 tons per acre.

Besides a paper company, one of the world's biggest producers of cartons and paper boxes has financed experiments with bamboo. At Herty, a high alpha cellulose has been made from it. A large Southern paper mill has also been making its own tests. An article on page 25 goes into the economics of making paper from bamboo.

Progress with Bagasse

Progress is reported by Louisiana State University in its research on development of an economical method of producing paper from bagasse, a sugar cane stalk residue. As reported in the March 1945 issue of PULP & PAPER INDUSTRY, this work is being conducted by the Baton Rouge, La., institution's department of chemical engineering of which Dr. T. M. Horton is dean. It is reported that a nitric acid process has separated the pith from the bagasse fiber with a subsequent satisfactory pulp for paper. Tests on a commercial basis are planned.

Paper has been made from bagasse several times during the past century, but the processes proved uneconomical. The wartime report for the government by Dr. E. E. Litkenhous suggested bagasse as a 40% extender for kraft paper. Blending of 55% of the bagasse in a wide range of coated papers, fine papers, liners, corrugating and board is satisfactory.

Dr. Litkenhous cautioned that different processes than ordinarily used in wood pulp making are found necessary in order not to damage the long fibers. It was calculated that a 100-ton mill could produce pulp for $16.65-$18.15 per ton as compared with slush kraft at $21.19.

Developed especially for possible use in papermaking is the Donax cane or reed cane, as it is commonly termed, which is shown growing in a New Orleans park in our cover picture this month. There has been considerable experimental work done with this Donax cane, a bleached bond paper (55 lb.) being made at the Herty Laboratory for Industries Associated, of New Orleans, on the Savannah institution's 24-inch trim Pusey & Jones 9-dryer paper machine and its little 75-lb. Hooker Electrochemical Co. circulating chlorination bleach plant.

None of the persons who have been associated with this work on Donax cane, and they include prominent and distinguished executives in the paper industry, would make any claim to it being an important source of fiber. Like bamboo and even the various stalks, it may best serve only to extend present supply of wood fiber or be used in certain expansion of board or types of paper.

A report released by Herty Laboratory states that two carloads of Arunda Donax cane were received from Industries Associated and 14 cooks were made in the laboratory's 300-lb. stainless steel digester (60 cu. ft.), using chemicals varying from 15-25%. Stock was screened, run in wet laps, refined and then into unbleached board. Later four chlorinations of 60-lb. batches were given a multi-stage bleach, were refined and run in the bond paper. Donax cane, it was concluded, may be readily adapted to standard pulp operation.

Propagation of the plant is by transplanting of roots, and it is estimated that it would require about five years to bring about a sufficient distribution and substantial production of the Donax cane roots.

Sugar Foundation's Report

The Sugar Research Foundation, Inc., 99 Wall St., New York City, recently issued a report edited by Clarence J. West, of the Institute of Paper Chemistry, Appleton, Wis., which quotes liberally from the Litkenhous report. A summary of the latter report was published in the March 1945 issue PULP & PAPER INDUSTRY.

The Foundation's release says chief advantage of cane bagasse is that no great problem of collection is involved, since cost of collecting, crushing and washing are borne by the sugar extraction process. No further treatment is required before pulping.

It states that one ton of bagasse yields 3,000 ft. of insulating board. That plastic compounds of bagasse mold readily at 300-350 degrees F. and pressure of 2,000 lbs. psi. Boards of 1/16-in. thickness can be molded in two or three minutes at 280-300 degrees and 1,500 lbs. psi. Laminating resin is available in form of a 40% alcoholic solution. Alcohol, nitrates, acetates and solutions for rayon manufacturing are possible by-products.

Cotton Stem Yield Is Low

If cotton stems could be used as a fiber for extending or conserving wood pulp it would help to lick the boll weevil menace and would make unnecessary the annual destruction by fire of this great Southern crop residue.

Cotton stem pulp made a good corrugated board at the Herty Laboratory.

But yield of air dry pulp from cotton stems at Savannah was only 24-26% as compared with 42% for bamboo and 44-46% for Southern pine. Cuban bagasse yielded only 18-20%.

About 800-1,000 lbs. of cotton stems could be taken off an acre. Because the boll weevil beds in the stems, they must be gotten rid of,

HERTY FOUNDATION LAB'S EQUIPMENT

A 60 cu. ft. stainless steel digestor, which can use sulfite, sulfate and soda cooking systems. Takes 300 lb. a. d. pulp.

Three-pocket Carthage grinder which takes 18-inch wood. Driven by 350 hp. General Electric motor and has Myers regulator. Ten artificial stones from Carborundum and Norton companies and a natural stone from England.

A 44-in. 4-knife Carthage chipper.

Hooker Electrochemical Co. 75-lb. capacity bleach plant (batch system, circulating chlorination.)

Water softener system for bleached rayon pulp.

Pusey & Jones paper machine with 31-inch wire. It has 4 suction boxes, 2 presses, 9 dryers and a 7-roll calendar stack, slitter and rewinder. For tissue production, a creping machine was added recently between second press and dryers.

Two sections of flat screens, a small jordan and three beaters (largest of 300 lbs. capacity) supplied by Valley Iron Works.

and the cotton seeded anew each year. The stems have no value as fertilizer. This might be an inducement for low cost collection.

The cotton stem pulp was run over the Pusey & Jones machine at Savannah's laboratory without breaks, and no sticking or foaming resulted. An .009 corrugated board was made with either soda or sulfite process and there seems no question that it will make a good corrugated board —the problems are in the field: collecting, handling and storage.

Soy Bean Stalks Tried

The laboratory also reported that it received seven bales of soy bean stalks from Alton Box Board Co., Alton, Ill., for experimental use. Chemical tests on the pulp and physical tests on the paper were not revealed. But here again the big problems would be rate of production of raw material on a given area and collection and handling.

Because of military and political events, Germany's I. G. Farbenindustrie discontinued operation of a pulp mill using rush and reeds in Rumania before the surrender. It hasn't been revived, owing to many postwar dislocations.

This seemed a good idea in Rumania because the rush and reed grows so profusely and perennially in the Danube Delta, but collection and transportation costs were high.

Production of esparto grass in Tunisia, which has made an excellent paper for engraving reproduction and other special printing in England, has fallen off sharply due to the war. This esparo grass output was averaging 110,000 tons a year in 1937-39, fell to a low of 6,000 tons in 1945, but is expected to recover to a level of 70,000 tons in 1946.

The alpha cellulose plant to produce rice stalks in Mexico City uses several drum filters of the type used in flotation plants. This is the first alpha cellulose plant producing from rice stalks in the Western Hemisphere but how important it will be is still an uncertainty.

But all of these fiber possibilities —as far as U. S. and Canada are concerned—are generally considered of less importance than possibilities of increasing wood production and utilizing trees of less common species.

Growth of Timber Bamboo in South; May Find Use in Specialty Papers

Foremost in the ranks of material supplemental to southern pine in the manufacture of paper pulp in the South are the Southern hardwoods that fill the stream bottoms. At first selected species, notably gum, were mixed with pine; then special runs of hardwood led to straight production. The Herty Laboratory in Savannah, Ga., has conducted tests for the industry on practically the full range of Southern hardwoods.

Interest in substitutes for southern pine has resulted in test processing of such items as soy bean stalks, golden rod stalks, cotton stalks, crotalaria, castor bean stalks, ramie, Arundal Donax Cane and bamboo.

Testing of Bamboo

Reference to testing of bamboo at Herty Laboratory resulted in widespread publicity, and the laboratory has been deluged with letters.

The furnish, in this case, came from the Phyllostachys Bambusoides grove of the Barbour Lathrop Plant Introduction Garden, U. S. Department of Agriculture, at Savannah, Ga. This giant or "timber" bamboo rightfully belongs in the miscellaneous group tested by the laboratory because, in fact, it is a grass and not a tree despite its height of from 50 to 60 feet, and its four-inch diameter.

These tall canes are produced in a single season from a mass of roots and rhizomes, as giant stems from a sod, not unlike as if they came direct from the pages of Alice in Wonderland. When they burst through the ground in May they are as large in diameter as they will ever be, and grow at a spectacular rate of as much as two feet in a single day.

The bamboo work done at the laboratory was on .009", .014", and .023" board. There were 23 cooks made on seasoned bamboo cane, using soda, sulfite and sulfate processes. There were 48 machine runs. The results indicate that this material will not reduce satisfactorily by the sulfite process because of poor strength properties and excessive number of specks contained after bleaching.

Bamboo pulps very readily with the sulfate and soda processes, but the laboratory found that the soda process yielded a product 25% to 30% lower in strength than from the sulfate process.

Results of Tests

It was found that 18% chemical as Na20 sulfate liquor gave the most promising results. Some of these results are as follows:

1. Bamboo wood has a density of 35 to 47 lbs. per cu. ft. (oven dry and air dry volume.) It was found that wood between the nodes was 35 lbs. per cu. ft. and wood at the nodes and including wood on either side was about 47.1 lbs. per cu. ft.
2. Ash content of the wood was 1.19%.
3. The alcohol benzine extracted portion of the ground wood was 2.64%.
4. The chips pulped to a permanganate number of 16.9 with the consumption of 14% active alkali as Na20. The use of 18% Na20 yielded a pulp of 10.4 permanganate number.
5. The softer pulp consumed 15.0% of 25% bleach to attain 75 brightness while the harder pulp bleached 81.9 brightness with the consumption of 22.2% of 25% bleach.
6. The unbleached Mullen test ranged from 161 to 186 maximum, and the corresponding tear ranged from 515 to 382. The softer pulp gave the best Mullen and lower tear.
7. The bleached pulp gave Mullens of 128 to 160, and tears of 272 to 326. Here again the softer pulp gave the best Mullen and also the best tear. The degree of bleaching evidently made a great difference in the pulp strengths.
8. The average fiber length was 1.4774 MM. Classification shows a loss of 25.26% of fiber representing the fines. This is rather high and probably is a result of the amount of small pith fibers present in the wood.

Bamboo pulp would not be judged satisfactory for some products, including rayon, as the color of the pulp is too dark; the water soluble matter and the ash content too high. A comparative analysis of bamboo and wood pulp follows:

ANALYSIS OF PULPS
(After removing moisture)

Color	*Bamboo* Brownish	*Woodpulp* White
	%	%
Dry Content	51.4	95.0
A-Cellulose	90.3	90.0
B-Cellulose	7.9	6.0
C-Cellulose	1.8	4.0
Water soluble matter	1.30	0.16
So4 Ash, Calc. So4 ion	2.704	0.083
Si	0.212	0.0015
Fe	0.021	0.0013
Mn	17.60ppm	0.16ppm
Ca	0.382	0.018
Cl	0.064	0.009
Resin	0.17	0.25
Pentosans	12.9	1.7

The bamboo fiber is fairly difficult to beat, and considerable beating is necessary to develop satisfactory strength qualities. The pulp appears to be intermediate between pulp of southern pine and pulp of chestnut wood. The average yield under the sulfate process in nine tests was 40.2%. The chips are heavy and tend to pack well. Even considering lower yield, it would still be possible to produce as much pulp per digester as is from pine wood.

Place for Bamboo

It is believed that the place of bamboo if introduced in the American pulp and paper field will be in specialties, for which it appears to be qualified. The laboratory is planning an early test in

the making of tissue. It is not believed that bamboo, under present conditions, could compete with southern pine—and hardwoods—in the kraft wrapping, bag and board field. However, tests were made of bamboo pulp in a mix with kraft waste for board.

Principal talking points for bamboo include its stable annual yield per acre of the equivalent to seven tons air dry pulp, and its lack of deterioration (as in pine pulpwood) which permits stocking against rainy weather. Harvesting cost to the mill is estimated at $6.00 per ton.

Growth of Timber Bamboo

From the standpoint of management and harvesting, the concentrated form of bamboo plantation would shrink handling distances tremendously. Actual planted area to supply a 50 ton/day mill would require but 2200 acres, which, expanded to provide utilization of only the most favorable soil, access spacing, and facilities, would involve possibly no more than 4,000 acres gross.

To provide pine pulpwood for a 15,000 tons per year mill, a well stocked stand producing 1.7 cords per acre-year would involve 25,500 acres net, or perhaps 34,000 gross acres. The shrinking in needed land area would go far in reducing industrial and public relations problems.

The timber bamboo used in the Herty Foundation tests came from a grove originally started in 1890 with three small transplanted plants. These had spread, attracting a good bit of attention, and when, in 1919, David Fairchild heard the owner of the 46-acre farm considered cutting the grove down, he appealed to Barbour Lathrop, a world traveler interested in bamboo, who bought the property and presented it to the government. It came under control of the Plant Exploration and Introduction Division, U. S. Department of Agriculture, in 1920, since when is has become the outstanding bamboo garden in the world, having 132 variations of this plant.

This bamboo has creeping underground stems, called rhizomes, which spread from the parent cane in all directions. These have buds which send up shoots that turn into the growing cane. Propagation may be obtained either by transplanting a two-year old cane, or by setting out two-foot sections of these rhizomes.

D. A. Bisset, chief scientific aide in charge of the garden, told Pulp & Paper Industry these rhizomes sections produce a shoot in 75 cases out of 100.

In the first year, the canes grow to a heigth of from two to five feet and send out rhizomes to a distance of from four to six feet. In each succeeding year, the new canes that come up from the rhizomes grow to a successively greater height until, from the eighth to tenth years, maximum growth of from 50 to 60 feet is attained. Rhizomes of maximum growth canes extend 30 to 40 feet from the plant.

To Southerners "switch cane" and "cane brakes" have long been familiar and these are both bamboos, but, because of inferior size and thin walled character of stems, they are comparatively worthless species.

The timber bamboo thouugh requiding a good bit of moisture, will not thrive on land where the water table is above 30 to 36 inches below the ground surfaces. Nor will the plant thrive on the sandy longleaf pine ridges. In setting out plantation cuttings, rows 21 feet apart with 10 foot plant spacings would prove satisfactory. The wide row spacing makes possible cultivation during the second year, after which the bamboo can take care of itself.

As a plant introduction garden, the Savannah establishment's function is to try out plants from all over the world, and then pass on cuttings (or plants) to nurseries or individuals who will propagate them. The timber bamboo has attained this stage. While rhizomes cuttings or small plants are obtainable in good quantity, it would be necessary for the establishment of a plantation to furnish a pulp mill to set up a nursery project. An initial plantation nursery stock of 10,000 cuttings set in selected soil, fertilized with a commercial organic

CELOTEX CORPORATION EXPANDS IN UNITED STATES AND BRITAIN

Bagasse, the residual fiber remaining from sugar cane after extraction of juice for sugar making, has attracted the attention of scientists for many decades as a raw material source for other products. Despite almost a century's efforts, the Celotex Corp. stands as the predominant user in the United States.

This company, after extensive research followed by painstaking practical development work, now operates a manufacturing plant for insulating and structural material at Marrero, La., across the river from New Orleans. This plant currently employs about 2000 persons.

B. G. Dahlberg, company president, maintains principal executive offices at 120 LaSalle St., Chicago, Ill., with Ralph F. Freeman as plant manager at Marrero. Emile Frederick, Jr., is director of the technical department at Marrero.

Mr. Dahlberg announces that his company is spending $7,000,000 to expand plant facilities in anticipation of a wide-scale building program to relieve the housing shortage.

Output of the company's plant at Marrero, La., is being increased to an annual capacity of 750,000,000 feet of Celotex.

The company's plant in London, England, is having its productive capacity tripled to 150,000,000 feet of Celotex

Expansion of the company's manufacturing operations were recently outlined in a talk in New Orleans by A. Watson Chapman, manager of technical operations, it being stated by him that 500 permanent employes will be added in production. Calls for Celotex, as in the case of other materials, has increased greatly in world-wide demand, partly because of the many successful uses to which it was put during the war. Celotex expects that its product will help re-build some 4,000,000 homes in England and will be much more widely used in the U. S. and other countries.

Bagasse fiber is used because of its exceptional length, strength and resistance to decay. Automatic baling equipment compresses the damp fiber from sugar mills into bales and these are stored in piles 120 x 60 ft. x 30 ft. high (12,000 bales each) in various parts of southern Louisiana. Thirty carloads each day are required for the Marrero plant.

Bales are so stacked that drying is accelerated by loose piling which permits circulation of air. The fibers come from cane mills with 50% moisture content.

As a result of work to combat disease, cane yield in Louisiana has been tripled since 1926.

About one-third of the 5,000,000 tons of cane processed at mills during the last season was utilized by Celotex.

Based on the talk which Mr. Chapman made, the following is a resume of the Celotex process:

Description of Process

When the bagasse is brought into the mill it is first cooked in 16 huge rotating spherical digesters, each having capacity of five tons. Cooked fiber is washed, refined, filtered out on specially designed board machines, dried, cut to size, and shipped in that form, or is subsequently given additional finishing processes, such as smooth surface, pre-painting, asphalt coating or impregnation.

From an engineering standpoint, perhaps the most unique equipment are the huge dryers. In many board plants, it is the practice to cut wet board into pieces and dry these small pieces in a multiple deck dryer, with subsequnt trimming loss on all four edges. Celotex avoids this by running the wet sheet directly into dryers, and drying the sheet as it moves forward. Marrero has two dryers, each 800 ft. long, and one dryer 1,000 ft. long. These reputedly form the largest single pieces of processed building material in the world, sheets 12½ ft. wide and from 1200 to 1400 ft. long. Celotex burns about five and a half million cu. ft. of material gas per day to operate these dryers, and evaporate about 750 tons of water in 24 hours. An additional two million ft. of gas per day generate boiler steam. Electric usage per day is equivalent of that of a town of over 100,000. Forty carloads of chemicals, 20 carloads of asphalt and 300 tons of wrapping paper and cartons are used each month. Three quarters of a million pounds of paint pigments and binders are used in a thirty day period in applying coatings. Ten million gallons of fresh make-up water a day are used and pumps handle about 65 million gallons of slush stock.

About 25 carloads of finished products leave the plant every day. This one plant's yearly capacity of over 550 million square feet of board is about equal to one-third the total annual production of the entire fiber wallboard industry.

Celotex has gypsum wallboard and plaster plants at Port Clinton, O., and Hamlin, Tex., and mineral wool plants at Lagro, Ind., and Detroit. At Metuchen, N. J., it has a specialty plant making heavy duty flooring, brick siding, cement-asbestos board and wall panels. There is also a plant in England, which is supplied with compressed bales of bagasse from the U. S.

mixture such as 7-5-5 at one ton per acre, and perhaps arranged for irrigation in case of drought, would provide 100,000 rhizomes sections at the end of the second year. On the basis of average favorable conditions for growth, the plantation could see its complete initial plantings from nursery stock by the end of the sixth year. Maximum growth would begin in the tenth year from nursery establishments, with plantation-wide experience by the 14th year.

There is at present in Savahanna Gardens a sample plot of Phyllostachys Vivax, a new, pure species as yet undescribed, which shows indications of attaining maximum growth in the 5th or 6th years. This is also a timber bamboo capable of producing paper. Being in laboratory stage, cuttings in quantity would not become available for quite some time.

Since its establishment at Savannah Gardens, the Phyllostachys Bambusoides has been successfully propagated from Norfolk, Va., to upper Florida, and from the Atlantic coast to East Texas. It has been established in California.

Now that the southern pulp and paper industry faves the need of bringing forest land up to full productive capacity, which entails setting out of seedlings, timber bamboo cultivation presents an interesting possibility. It is understood that having successfully passed the tests at Herty Foundation, it is being accorded further investigation in company laboratories.

Top Personnel for Simpson Board Mill

Framework is up for the new insulating softboard plant being built at Shelton, Wash., by Simpson Logging Co., for more complete utilization of their forest resources, but it will be around October before the job is done. The new office and laboratory are built.

Carl J. Macke, vice president in charge of engineering and research for the logging company, has moved into the new office on the waterfront site with his staff.

Chris H. Kreienbaum, president and general manager, is at the company's main office in the town of Shelton. William G. Reed, of Seattle, is chairman of the company.

Chief lieutenants for the board mill project, serving under Mr. Macke, are:

William McKenzie, director of engineering.

Marion F. Smith, director of research.

Mr. McKenzie was formerly engineer for Rayonier Incorporated in Shelton and manager of the joint power plant serving the Rayonier mill and Simpson sawmills and chipping plant.

Mr. Smith was formerly with the Philip Carey Mfg. Co., Lockland, Ohio, manufacturers of roofing and insulating papers.

Assistant director of engineering is Oliver Ashford, formerly engineer at the Rayonier mill in Fernandina, Fla., and prior to that at Rayonier's Shelton mill.

Assistant director of research is Art Walton, who was engineer in the plywood division of the Simpson company.

Mr. McKenzie and Mr. Ashford are mechanical engineers and Mr. Smith and Mr. Walton are chemical engineers.

Among the top executives of the Simpson Logging Co., one of the leading forest industry operators in the west for 50 years, besides Mr. Reed, Mr. Kreienbaum and Mr. Macke are:

George L. Drake, vice president in charge of logging.

S. A. Hatcher, vice president in charge of the timber division.

Don H. Clark, manager of the plywood and door division.

R. E. Seeley, vice president in charge of sales, and manager of Simpson Industries, Inc. (1010 White Bldg., Seattle 1).

Percy Funk, purchasing agent, at main office in Shelton.

Powell River Men Fly to Sweden

Harry Andrews, technical director of Powell River Co., and Howard Urquhart, staff engineer, left Vancouver, B.C., July 12 for Sweden, where they will visit pulp and paper mills with a view to studying postwar methods and installations. Flying both ways, the Powell River men expected to return to the coast some time in August.

Expiration of Masonite Patents and Swedish Techniques May Spur U. S. Hardboard Industry

Sweden has made much more of its hardboard industry than North America, and in the opinion of an observer recently returned from Stockholm, the fiber board industry in this country, now heading into a definite period of expansion, can learn much from the Swedish industry.

Sweden uses about 75 square feet of fiber board per capita, in comparison with the U. S. consumption of about 6½ square feet. It is used there chiefly by the furniture and construction industry, and there is a large utilization of waste board for small products such as desk-calendar bases and other minor uses which appeared in the U. S. during the war.

In the opinion of this observer, one big reason for the comparative slowness of the industry to develop in United States was the control of patents until recently, one or two firms being unable to supply the market.

With the new board mills going into production or in the plan stage here, the Swedish picture is of more than passing interest. Board sells in Sweden at about $39.00 per thousand feet retail compared with $50 to $60 in the U. S.

Labor costs are about one-half in the older country, but it is believed by this observer that the U. S. and Canada can get closer to the Swedish price through wider markets and improved equipment. Plywood, he says, is being used in many instances in this country where fiber board would do as well or better and would, in addition, support a more sensible utilization of raw materials.

In Sweden, the famed Masonite hardboard patents were only effective on the gunshot process of treating chips and not specifically on the product, as in the U. S. Therefore, beginning with one plant in 1928, Sweden now has 15 hardboard plants, all including use of defibrator and Fourdrinier machines in their stages of manufacture.

With expiration of Masonite patents last year, some industry men believe the use of forest and sawmill waste for hardboard, especially in the Far West, will be stimulated.

Big increases in softboard manufacture are already being made.

One of the biggest U. S. softboard (insulating) manufacturers plans to make hardboard in England with waste wood.

Three Finnish mills were manufacturing wall board and insulating board at the end of 1945. Two of them began manufacturing during the war and have a combined annual production of about 5,500 short tons. The third, with an annual production of about 22,000 tons, is planning to enlarge its plant.

Sorg Keeps Going On Jack Pine

Kraft pulp from 100 per cent jackpine has been manufactured in fairly large quantities by Sorg Pulp Co. at its Port Mellon plant in Howe Sound, B. C., in recent months.

When British Columbia loggers called their strike in the forests of the west coast Sorg Pulp Co. was probably less affected than any other operation in the industry because it was buying a large proportion of its pulpwood from contractors along the Pacific Great Eastern Railway who were not affected by the shutdown. All the camps along Pacific Great Eastern ship jackpine exclusively

General Manager Hugh M. Lewis of Sorg Pulp Co., says that the company is working on plans for introduction of more mechanization in the wood operation.

Gypsum Official Dies

John W. Fowler, chairman of the board of U. S. Gypsum Co., died at his home in Chicago, July 15.

Formerly active in numerous business affairs in Scranton, Pa., Mr. Fowler served for many years as an officer of the Scranton Lackawanna Trust Co. and subsequently became its president. He was also president of Scranton Steam Pump Co.

WESTMINSTER PAPER CO.'S ADDITIONS NEAR COMPLETION

Westminster Paper Co.'s $1,500,000 construction program designed to double production is now rapidly nearing completion, and President E. M. Herb expects the enlarged plant will be in full operation by late September.

The company's mill, at New Westminster, British Columbia, on the Fraser riverfront, has been producing in the past at the rate of about 9,000 tons a year of towel, tissue, fruit wrap and waxed papers. The objective of the present expansion program is a production of at least 18,000 tons a year.

All the delays and complications experienced these days by manufacturers seeking new equipment have been the lot of Mr. Herb and his staff since the fall of 1944, when its was decided to go ahead with the plans for greatly increased output. But most of the hurdles have been cleared, the main machine units have been delivered, and it is now merely a matter of getting essential parts delivered, installed and put in running order.

The company's program represents a doubling of building space as well as of production. Beater room and finishing room have been enlarged and a new power house, boiler house, machine room and wax storage room have been erected. Buildings are of reinforced concrete with steel-trussed roof, and fireproof features.

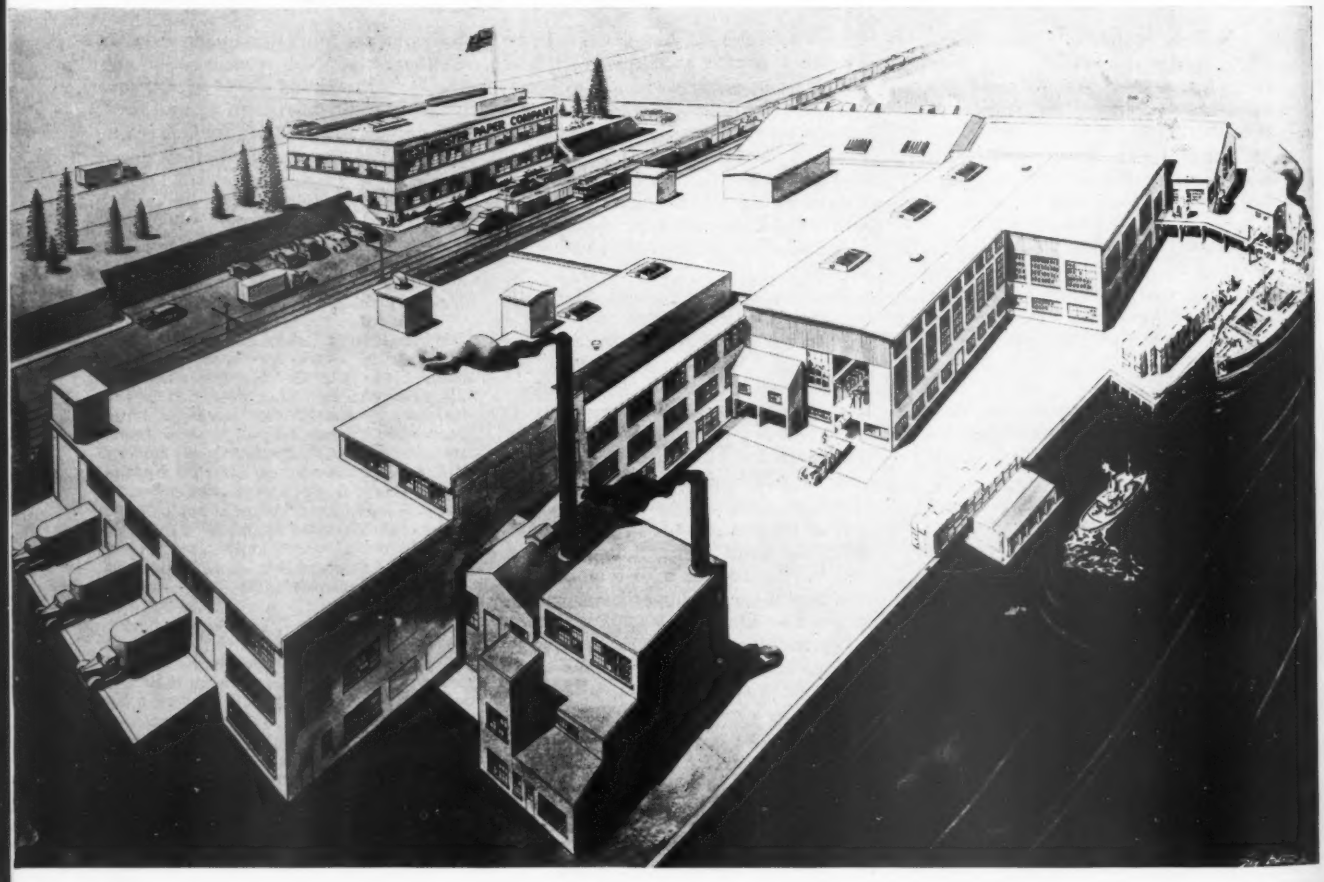
Most of the increased production setup is built around a new Beloit machine similar to the unit that has served the company for several years. Width of the machine is 132 inches with 126-inch trim. Speed is 1500 feet a minute and capacity per 24 hours is estimated at 34 tons. Products of this new (No. 2) machine will be facial tissues, waxing stock and cellulose wadding. No. 1 machine will concentrate on crepe toilet napkins and towels.

Aim Is Diversification

One of the reasons for the installation of a second machine was to facilitate diversification of production. No. 1 machine was worked seven days a week, 24 hours a day, ever since the summer of 1935 ex-

HERE IS AN ARTIST'S SKETCH of Westminster Paper Co. when present construction program has been completed. In the right foreground is Fraser River. The block in the middle foreground is the new boiler house. Immediately to the left of the boiler house is finished goods storage and shipping room, with converting room in the center of the picture.

The inverted L-shaped building adjacent to wharf will house the No. 2 machine (where truck is being loaded) and the new beater room near where paper is piled waiting to be loaded on the ship. Building in right background is occupied by No. 1 machine and the old beater room. Off to the left background, across the railroad tracks, are new office building, terraced lawn and other facilities yet to be built.



cept for a pause during rebuilding of the plant in 1941.

Whenever production was switched from crepe to fruit wraps, for instance, it was necessary to make a complete changeover on the one machine. The additional unit will give the mill flexibility and continuity it was unable to achieve previously.

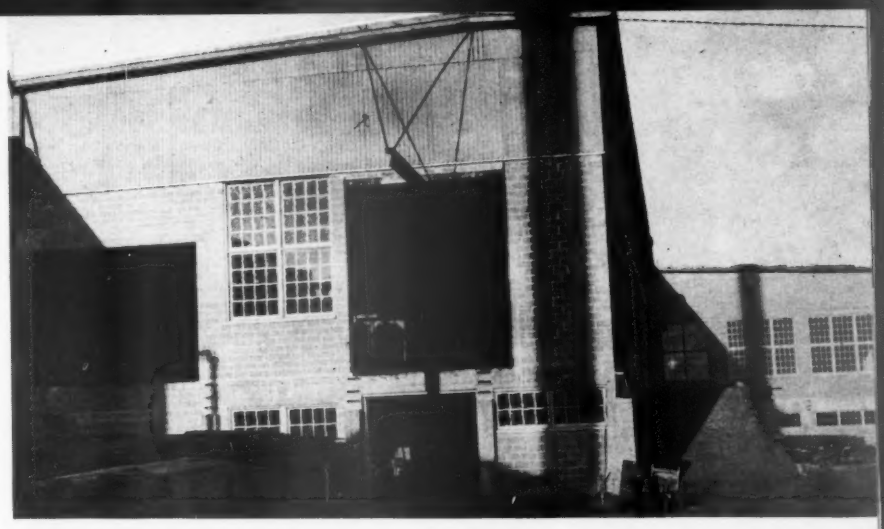
No. 2 machine will have a General Electric motor with variable speed D.C. drive. Two jordans have been installed in the beating room with Hydrapulpers and Hydrafiners manufactured in Canada by Alexander Fleck, Ltd., Ottawa, associated with Dilts Machine Works of Fulton, N. Y., and Black-Clawson Co. of Hamilton, O.

Paper Converting Machine Co., of Green Bay, Wis., supplied the converting equipment for toilet napkins and towels. Roll wrapper equipment was made by C. A. Lawton & Co. of Depere, Wis.; waxing equipment by Alexander Fleck, Ltd. Equipment for sealing cases was manufactured by Standard-Knapp; automatic conveyors by B. C. Converting Machinery Co.

A Cameron Machine Co. rewinder is being installed in the finishing room, and a Bird save-all will be operated with the paper machine. Screens are being supplied by Alexander Fleck, and hoods for the paper machine by Ross Engineering Co.

The Canadian Stebbins Co. has put in a tiled chest and lining for the paper machine pit.

The new machine room is 144 feet by 56 feet and this, with the beater room, at its west end, 87 feet by 82 feet, occupies two floors. The finishing room, 150 feet by 111 feet, is a part of a three and a half story building. A new fuel bin, 80 by 48 feet, has also been built.



NEW ADDITION TO WESTMINSTER PAPER CO. This is a section of room for new No. 2 Beloit machine for facial tissue and other products, doubling mill's present capacity.

Plans for the $190,000 steam generating plant with a capacity of 40,000 lbs. of steam and pressure of 600 lbs. and equipped with facilities for drying paper were drawn up by W. O. Stevens, Seattle.

The setup in the boiler house is considerably larger than was originally contemplated. The boiler is a 600-lb. pressure Foster Wheeler unit, operating in conjunction with two Moore turbines. A General Electric generator produces 1300-1400 h.p.

The Foster-Wheeler unit is to be installed about January.

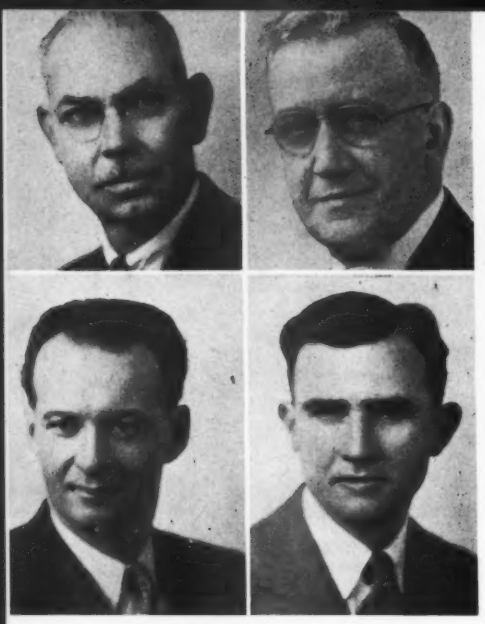
Extensive changes have been made in the loading and unloading facilities along the riverfront and more changes are planned for the railroad trackage and freight handling facilities. The old wharf, which long ago proved inadequate, has been replaced by a 160-foot wharf equipped with Otis-Fenson elevator for loading scows or coastal freighters. In order to carry out this program it was necessary to reclaim a section of the company's 700-foot frontage along the river.

Eventually the office will be shifted from its present location in the main plant building to a site across the railroad tracks where there will be ample accommodation for automobile parking. Water filters and oil storage facilities will also be installed there.

Unbleached sulfite and groundwood pulp are supplied to Westminster Paper Co. by Powell River Co. and bleached sulfite pulp by British Columbia Pulp & Paper Co.

When the mill is in full operation it will employ about 400 workers,

PRESENT plant of Westminster Paper Co.



EXECUTIVES of Westminster Paper Co.:
F. F. FOOTE (upper left), Sec.-Treas. and Production Mgr.

FRED L. ERLER (upper right), Superintendent; C. T. RADCLIFFE (lower left), Sales and Adv. Mgr.; JOHN ASHBY (lower right), Technical Director. Mr. Erler, from Marinette, Wis., succeeded Ray Onkels, veteran in the Herb organization, who has retired to a Blaine, Wash., farm.

compared with the present 260, according to Mr. Herb's estimate.

Westminster Executives

E. M. Herb succeeded his father, J. J. Herb (now chairman), to the presidency last year after serving as vice president and general manager since 1937. For seven years prior to that time he was assistant general manager. He has been in the pulp and paper business all his life, having joined the Pacific Coast Paper Mills of Washington, Inc., Bellingham, Wash., another Herb operation, after graduating from the University of Washington in 1925. His younger brother, F. J. (Bill) Herb is vice president and general manager at Bellingham, where his father is president.

F. F. Foote, secretary-treasurer of the company, also serves as production manager, purchasing agent and director. He joined the company during the building of the original plant in 1928.

C. T. Radcliffe, sales and advertising manager, began his career in the industry in 1920 with Pacific Wax Paper Co., joining Westminster Paper Co. in 1926 as assistant sales manager specializing in exports.

Fred L. Erler joined the company last October as general superintendent. He was previously assistant superintendent of the Marinette Paper Co., Marinette, Wis.

His predecessor, Ray C. Onkels, who had a long career in the paper industry beginning as floor sweeper in the Thilmany Pulp and Paper Co. mill in Wisconsin, where the elder Mr. Herb worked, is now enjoying the life of a country gentleman near the B.C.-Washington border. He has a farm near Blaine, Wash.

John Ashby, technical director, was with the British Columbia Pulp & Paper Co. as chemist before joining the Westminster organization in 1935.

Founder of the company and chairman of the board, J. J. Herb, is one of the real pioneers of the industry in the Pacific Northwest.

E. M. HERB, who became President last year of Westminster Paper Co., and is also General Manager.

In 1888, as a 15-year-old, he won his first job, also as a sweeper in the Thilmany mill at Kaukauna, Wis., and during the next 24 years he absorbed a fund of information that served him well. In 1912 he moved to Merriton, Ont., where he built Interlake mill, and there he remained for 10 years as mill manager. (*picture on p. 31, Mar. '46 issue*).

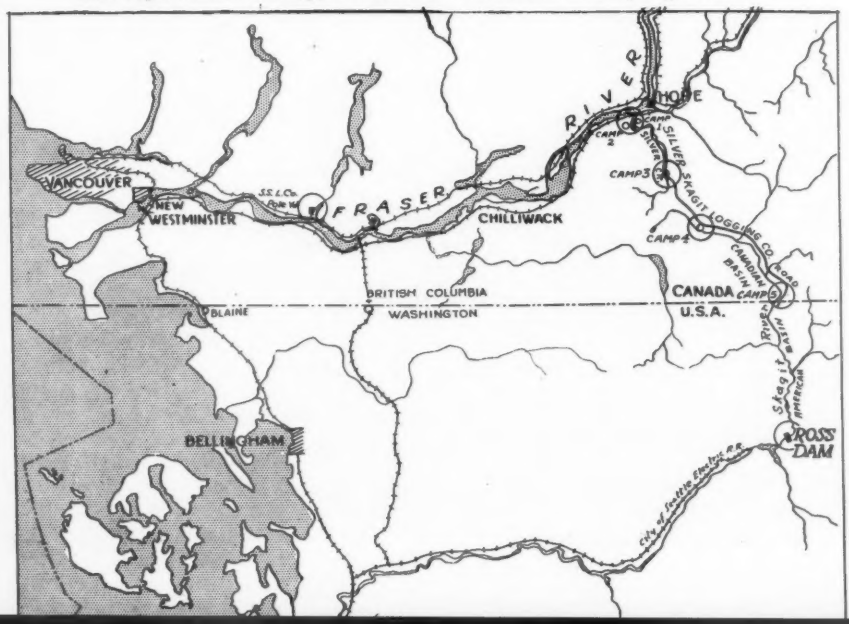
Westminster History

In 1922 he persuaded a group of his friends to assist in financing a mill at New Westminster and he came west to supervise its construction. Since then, his interests have been in the west. Three years after launching the enterprise on the banks of the Fraser he organized the Pacific Coast Paper Mills of Washington, Inc., at Bellingham, and enjoyed the distinction of being the first person to operate paper specialty manufacturing plants on the west coast, either in Canada or the United States. This Bellingham mill is increasing its production about 40% (See page 31, Mar. 1946 issue of PULP & PAPER INDUSTRY).

When, in the summer of 1929, the New Westminster plan was burned to the ground, a situation arose that might have discouraged anyone with less determination and less faith in the future than J. J. Herb, for 1929 was the year of the stock market crash, too, and funds were hard to obtain for any industrial enterprise.

It was necessary to resell nearly 50% of the company's refinanced bond issue on the open market, but British Columbians were familiar by then with the company's progressive attitude and capable management and the necessary funds were invested, with the result that by May, 1930, a new mill was in production.

THIS MAP SHOWS location of the Westminster Paper Co., at New Westminster, near Vancouver. At Bellingham, across the U. S.-Canadian border, is Puget Sound Pulp & Timber Co. and Pacific Coast Paper Mills of Washington. A board mill will be built there by Puget Sound.



New Orleans Experimental Station Reports on Wood Economics

Intensive study of sawmill and logging waste in the South as a means to reduce costs by increasing utilization of forest stands is being undertaken currently by the Southern Forest Experiment Station, the U. S. Forest Products Laboratory and the Southern Pine Association. According to the 1945 annual report of the Experiment Station at New Orleans of which Chas. A. Connaughton is director, the waste in logging and processing in eight Southern states amounts to two billion cubic feet, or two-fifths of the annual forest drain.

Of the forest waste total, about half occurs in logging in which only 10% is recovered. Of the other half, 60% of the manufacturing half of the total waste is consumed in fuel.

The Southern Pine Association has canvassed all members of industries in its area that might have an interest in such waste recovery, which is part of the American Forest Product Industries program. This indicates the waste product will prove of greatest interest to roofing and felt mills.

Tree Culture

In summarizing its many activities in eight states extending from Georgia to Texas, the Southern Forest Experiment Station presents some interesting conclusions on tree culture.

In plantation spacing tests with slash and loblolly pine at Auburn (Ala.) it was found, for instance, that close setting of seedlings produced the most wood. Spacings of each variety ranged from 4 by 4 to 16 by 16 feet. Thinnings of the 4 by 4 plantings were effected in 8 years; on 6 by 6 feet in 12 years.

At 12 years the volume of wood in slash pine varied from 8 to 36 cords per acre; loblolly, from 10 to 25 cords. The slash pine set by 4 by 4 had produced 36 cords of wood in 12 years, or a growth of 3 cords per acre; the 6 by 6-foot spacing produced 26 cords per acre. The average rate of growth of wood in Alabama is placed at 0.4 cords per acre year. The point is made that Alabama forest stands are too thinly stocked with not enough of the right kind of trees properly distributed.

The station also finds that mixing slash pine and longleaf pine in the same stands is more apt to result in fairly adequate stocking than in pure stands of either species. This conclusion was based on tests for fire (which is harmful to slash pine) and hogs (which eat the longleaf's tap root) and applies to pine stands of from 2 to 4 years of age. On the hog test, they got 97% of the longleaf. The station conclusion is based upon an assumption that complete exclusion of both hogs and fire is too ideal.

The station found that storage of southern pine seed can be effected

NEW SURVEY REVEALS INCREASE IN FOREST GROWING STOCK IN MANAGED LANDS

Total growing stock of southern pine forest volume in the states extending across the South from Georgia to Texas declined 4% since the forest survey made in the middle 30's according to the Southern Forest Experiment Station, which has released a new 1946 report of a re-estimate of the stand. In the same eight-state area, total hardwood growing stock increased by 5% during the decade.

The volume of saw timber in the area as of January 1, 1946, is placed at 220 billion bd. ft., a decrease of 14%. Total growing stock, including small trees (5 inches dbh) and pine tops as well as sawlog material, stands at 78 billion cu. ft., a decrease of less than 1% in cubic volume in the decade. Percentage decline in pine and hardwood sawlog volume was about equal.

Total growing stock decreased during the decade in Oklahoma, Arkansas, Georgia, and Florida, but showed a gain in Texas, Louisiana, Mississippi, and Alabama. Most gains were made in the longleaf-slash and other southerly units outside of Florida.

Some of the highlights of the timber-volume changes in these eight lower southern states appeared to be as follows: There was a rather general decline in volume, particularly in Florida, and in the shortleaf pine-hardwood areas in the northern part of the region; a fairly consistent decline of volume in trees of sawlog size and in pine trees of all merchantable sizes; a notable rise in volume of under-sawlog size in hardwoods.

Units in which the forest has held its own are lands of owners who have adopted good management practices. In the southern part of East Texas, there are 1,627,504 acres of industry-owned forest lands listed as "Tree Farms" without including National Forest area. Here, Southland Paper Mills, Inc., has 110,000 acres in "Tree Farm." In this unit, pine sawlog timber increased 31% and total pine volume increased 37%. Hardwoods also increased in both categories.

In Unit 1 in Alabama, pine sawlog volume increased 34% during the decade, and total volume of pine increased 35%. In Unit 2, pine sawlog stand decreased 8% but total volume increased 13%. In these there are located 1,564,446 acres of industry-owned "Tree Farms" either wholly or partly within the units. Owners include Southern Kraft Division of International Paper Co., and Gulf States Paper Corp.

In Louisiana, the unit in which Gaylord Container Corp. forest lands are located showed a gain in sawlog stands for all combined species.

TOTAL FOREST GROWING STOCK IN SOUTH U. S.

1946 Figures Compared With Those of 10 Years Ago

State	Pine		Hardwood		All Species		
	In 1946	*Change since mid-1930's survey*	*In 1946*	*Change since mid-1930's survey*	*In 1946*		*Change since mid-1930's survey*
					Total	*Per acre*	
	Million cu. ft.	*%*	*Million cu. ft.*	*%*	*Million cu. ft.*	*Cubic ft.*	*%*
Alabama	6,821	— 2	5,702	+15	12,523	663	+ 5
Arkansas	5,085	+ 2	6,300	— 4	11,385	829	— 2
Florida	3,606	—19	3,124	— 5	6,730	305	—13
Georgia	8,473	— 9	5,757	+10	14,230	676	— 2
Louisiana	3,728	— 7	8 188	+ 5	11,916	735	+ 1
Mississippi	3,605	—16	6,902	+14	10,507	662	+ 1
Oklahoma	585	— 7	460	—19	1,045	353	—13
Texas	6,069	+18	3.490	+ 2	9,559	904	+12
All states	37,972	— 4	39,923	+ 5	77,895	636	Negl.

Source—Southern Forest Experiment Station, New Orleans.
Cull-free cubic volume, inside bark, of all sawlog growing stock (softwoods at least 9 inches d.b.h.; hardwoods, 13 inches; cypress, 9 inches or 13 inches in Mississippi Delta); all thrifty, well-formed trees of less than sawlog size but at leat 5 inches d.b.h.; and the upper stems of sawlog-size softwoods, above merchantable sawlogs; but excluding hardwood tops. Including hardwood tops, total growing stock of all species is as follows, in million cu. ft.: Alabama, 13,620; Arkansas, 12,625; Florida, 7,239; Georgia, 15,237; Louisiana, 13,933; Mississippi, 12,131; Oklahoma, 1,110; Texas, 10,266; All states, 86,161.

JOSEPH W. SHIMP, Jr. (left), recently discharged from the Navy as Lieutenant (j.g.), who has been appointed Special Assistant to Manager D. B. Wilkinson at the Marinette, Wis., plant of Marinette Paper Co., a subsidiary of Scott Paper Co.
In his new capacity he will work on special problems in cooperation with department heads. Mr. Shimp joined Scott in 1937 while attending Drexel Institute of Technology. In 1940 he enrolled in the Institute of Paper Chemistry at Appleton and continued studies there until 1944. He has worked in Scott's Chester, Pa.; Brunswick, Ga.; Anacortes, Wash., and Empire, Ore., mills.

J. E. ROBISON (right), Chemist at Fir-Tex Insulating Board Co., St. Helens, Ore., who returned to duty from armed forces recently. He fills place left vacant when Glen Long became Technical Director of Pacific Paperboard Co., Longview, Wash. Mr. Robison spent 3½ years in the Army Air Forces as 2nd Lieutenant. Prior to that he had 3½ years of service with Fir-Tex in technical department.

at temperatures of from 5 to 25 degrees F. to better advantage than at from 38 to 41 degrees, the latter being temperatures now followed. The discovery opens up a wider range of storage plants for seed.

About Livestock

Forest land owners who have been timid about bucking the "old nester" who lets his cows range on other peoples' land and burns the young pine trees along with dead grass may derive a modicum of courage from the station's conclusion that open range forage is adequate in April and March, barely enough for animal maintenance in summer and early fall, and woefully inadequate in winter months. Careful weighing of statements of forest fact finders leads consistently to the conclusion that the day for "open range" in the South has passed; that forest owners should turn to setting out of seedlings to bring lands to full capacity growth, and, where necessary, put up stock exclusion fences to stop burning.

When this accomplishment has been achieved, the southern livestock owner will begin to prosper as he will be forced to heed the county agent's advice to provide good pasture for his animals.

The problems of "unwanted" hardwoods in the South is absorbing an increasing amount of time from the station. West of the Mississippi River, it is indicated, 50% of effective pine growing space is now occupied by worthless hardwoods. The station reports that burning is ineffectual as it destroys the young pine seedlings but does not restrain scrub hardwood. The U. S. Forest Laboratory at Madison, Wis., is conducting extensive experiments (with some degree of success) on utilization of hardwoods in paper pulping. Encouragement in this direction comes from industry adoption of a practice of mixing a percentage of selected species with pine, and, more recently, the setting up of an exclusively hardwood pulp mill operation at Georgetown, S. C.

Development of a simple and direct method for quantitative appraisal of damage to timber values by fire is reported by the station as a result of a prescribed burning program in the Osceola National Forest, near Lake City, Fla. The method is based on the probable survival and growth of crop trees in even aged stands, after correction for degree of scorching. The method utilizes a simple slide-rule type of damage estimator which integrates the number of crop trees, proportion of longleaf (which is fire resistant) pine, mean diameter breast high, and mean percentage of scorching to give the estimated fire damage.

The prescribed burning program is designed to preventing accumulation of hazardous quantities of low fuel. On 72,000 acres it was found that the average cost of burning was 7.35c per acre, and average damage (to stand), 21c, or a total cost of 28.35c per acre. A complete report will be available at an early date.

Studies On Wood Production in Southeast

Economic studies as to production of pulpwood have been arranged through joint agreement between the U. S. government on one hand and Southern Pulpwood Conservation Association and International Paper Company on the other. Originally scheduled for work under the jurisdiction of the Southern Forest Experiment Station, the project was transferred to the Southeastern Station at Ashville, N. C., when the states of Georgia and Florida were switched to the latter.

The pulpwood harvesting studies will be carried on in the Hitchiti Experimental Forest, north of Macon, Ga. The nature of the work has been described as follows:

(a) Production studies to determine the most economical methods of harvesting and transporting pulpwood and other forest products in the shortleaf-loblolly-hardwoods forest type, with special emphasis on the problems of relatively light cuts and relatively small-scale stand improvement.

(b) Silvicultural investigations designed to determine the best methods of obtaining the maximum growth and value in these stands; including studies of thinnings, methods of cutting, natural reproduction and stand improvement.

New Divisions in South To Hold Meetings

Howard J. Doyle, formerly employed by the U. S. Forest Service and stationed at Athens, Ga., has been named regional forester for Virginia-North Carolina by the Southern Pulpwood Conservation Association, according to announcement of H. J. Malsberger, general manager.

The association will have four regional operations. The Coastal Plains region will include South Carolina, Georgia and the Atlantic Coast section of Florida. The Gulf region will include west Florida, Alabama, Mississippi, and Louisiana east of the Mississippi River. A fourth region will include Arkansas, Texas, and Louisiana west of the Mississippi River. Meetings will be held in Virginia-North Carolina region in September; Gulf Coast in October; west of the river in November; and the Coastal region in August.

Uses Plane

John Wilkinson, Jr., Hogansville, Ga., pulpwood dealer for Union Bag and Paper Co., Savannah, Ga., has adopted an airplane for covering his territory.

Joins Gaylord

Frank Heyward, formerly manager of Southern Pulpwood Conservation Association, has joined the Gaylord Container Corp., Bogalusa, La.

MANAGEMENT AND LABOR SIT TOGETHER AT SAFETY MEETING

Out of a paperboard mill union meeting in Stockton, Calif., has come an original idea which holds promise of having a far-reaching beneficial effect upon the management-labor relations of not only this industry but many other major industries of the United States and Canada.

It has resulted in what are believed to be the first statewide safety conferences in any industry in which both management and labor unions sent delegates with equal rights and responsibilities. Word of these meetings has spread into the East and South and already inquiries have been received from executives of industries and unions elsewhere, avidly curious for information about this new experiment.

This is a report on the first one—held in Olympia, Wash., Aug. 2 and 3, and participated in by union and management delegates from about 20 pulp and papermills in the state of Washington, in most cases two management and two union men representing each mill. A number of state safety officials were cordially-welcomed kibitzers.

The same procedure was being carried out this month in Oregon and California—a meeting in Salem, Ore., being held Aug. 16-17 and in Los Angeles, Aug. 30-31—so this report on the Olympia pioneering venture will more or less fit the others.

AT MANAGEMENT-UNION SAFETY CONFERENCE, first of kind ever held, in Olympia, Wash.:

Top row (left to right): John Sherman, vice president of Pulp, Sulfite and Paper Mill Workers union; R. T. Drummond, vice president of Paper Makers union, and Otto R. Hartwig, general safety director for all Crown Z mills. These were principal leaders of discussions, Mr. Sherman and Mr. Hartwig being co-chairmen.

Second row (l. to r.): G. A. Okerlund, personnel director, Puget Sound Pulp & Timber Co.; H. O. Skipley, Weyerhaeuser (Everett pulp mill) yard foreman and safety chairman, and William H. Hudgins, co-union delegate from Weyerhaeuser (Everett mill).

Third row (l. to r.): Dr. A. N. Farner, State Dept. of Health; Fred Pontin, Crown Z's first aid instructor; Oren Parker, international representative, Pulp, Sulfite and Paper Mill Workers.

Fourth row (l. to r.): Dan Adair, supervisor of safety, State Dept. of Labor and Industries; Louis Alcyza, a guest from Peru's Dept. of Labor; John Sherman; A. R. Heron, executive vice president of Coast Association of Pulp & Paper Mfgrs.; Mr. Hartwig, and G. M. Oyster, General Safety Director for all divisions of Weyerhaeuser Timber Co.

Last row (l. to r.): Boyd K. Wickwire, personnel director, Longview Fibre Co., and registration chairman; George Holt, assistant resident manager of Rayonier's Grays Harbor Division and safety committeeman; Andy Gow and Robert Gilmore, personnel and safety executives for all Western Rayonier mills, headquarters in Olympia. Mr. Gilmore and Mr. Gow handled conference arrangements.

It is easy for scoffers to say that safety is about the only subject management and labor could get together on in the way they are doing this month in the series of joint labor-management safety conferences on the Pacific Coast.

That's one of those half-truths which fails to point out that a start has to be made somewhere—and that this experience may lead both sides to try to find other "areas of agreement" as the international diplomats say.

At Olympia, Wash., and at the other Pacific Coast meetings, management and labor were on the same side of the table for the first time. The meetings were run by co-chairmen and the union and management delegates actually mingled on the floor. In fact, men from the same mill town tended to sit together, regardless of which side they represented, and even a few union delegates were heard to criticize labor's attitudes and actions in matters of safety, while some others, who might have been considered "champions" of management, were also frankly self-critical.

No more smoothly amicable and cooperative co-chairmen could have served at any kind of meeting than Otto R. Hartwig, general safety director of all the Crown Zellerbach mills, and John R. Sherman, vice president of AFL Pulp, Sulfite and Paper Mill Workers. Of all the speakers, they perhaps best summed up the significance of the meetings when Mr. Sherman stated, and Mr. Hartwig later fully agreed:

"This meeting shows an acceptance of a new responsibility, placed equally on employer and employe. Both stand to gain enormously thru sincere safety efforts."

Tangible Results

Among tangible results of the Olympia safety conference, was a viva voce decision to publish a pamphlet for general distribution in the coast industry after conclusion of all three meetings, listing points of agreement on a program for safety education, accident prevention and first aid.

It was also voted to produce a moving picture film, using equipment offered by the Washington State Department of Labor and Industries, to further safety and the state officials agreed to make "shots" in the various mills as decided upon by the mill groups.

An interesting development at the Olympia conference was the freedom of discussion and the large number of specific suggestions which came from the floor. On the first morning, the union men seemed a little reticient to "get on their feet." Because nearly all the management delegates were trained per-

PARTICIPANTS in Washington State Safety conference (left to right): H. E. SHERMAN, Rayonier Inc., Port Angeles; A. F. BENSON, Fibreboard Products, Inc., Port Angeles; FRANK BARTON, Rayonier, Port Angeles; BARNEY T. MULLANEY, Crown Zellerbach Corp., Port Townsend, and R. W. VAUGHAN, Fibreboard Products, Inc., Sumner.

sonnel or safety executives from the mills, the union men may have felt some hesitance in opening up. But right at the outset, the discussion leaders set the tone for the meeting, by steering it away from technical phases of safety as well as specific cases or incidents and keeping it on the "beam" of discussing and settling upon broad, general policies.

With a little urging from their leaders, Mr. Sherman and Russell T. Drummond, vice president of the AFL Brotherhood of Paper Makers, the union delegates were soon "relaxed" and fully participating. Here are some of the suggestions, spontaneously made from the floor, and which were generally approved, some by show of hands:

Responsibility of Management

1. It should encourage safety suggestions and act upon them promptly. In the case of impractical ones, it should go back to individual employes or groups making them, and explain why they are impractical.

2. It should require supervisors and foremen to be thoroughly trained in safety and first aid and be responsible and conscientious in these matters themselves.

3. It must take responsibility for training or "briefing" of new employes.

4. It should recognize accident preventing as being on a par with production for attainment of maximum efficiency.

5. It should see that safety meetings are held regularly.

6. It should make movies of accident scenes and otherwise prepare educational material for employes.

Responsibility of Unions

1. They should make safety work by encouraging "good housekeeping."

2. They should impress upon employes that they have an obligation to report infraction of safety rules or unsafe conditions.

3. They should support the safety committees in disciplining violators.

4. They should build up and stress the importance of the members of safety committees (one suggestion was that they wear badges).

5. They should rotate membership on safety committees and encourage the older men in the mills to participate in safety.

6. They should select shop stewards of high character who are qualified to assist in safety work and are trained in first aid. However, duties of union-appointed shop stewards (a comparatively new development in Pacific Coast industries) should be rigidly defined so they do not conflict with those of the safety committee.

Authority of Safety Committees

The discussions were generally quite animated, but the nearest thing to an "issue" developed on the final day when the authority of safety committees were debated. Under Washington state law, joint management-union safety committees are required in all industrial plants employing 10 or more persons and it was brought out by several speakers that this is the only state in the union which has authority to set up safety standards going beyond mere mechanical safety measures.

Dan Adair, supervisor of safety for the state, entered into the discussion of safety committee authority and he said:

"In our Washington State safety standards, the state does not have authority to pass on the police power of safety committees. But the state department itself has the power to enforce certain actions by employer or employe. The work of the safety committees should be advisory or educational, and the state department can be the 'backbone' for the committee and enforce action when the committee needs help."

Previously, Mr. Sherman had said: "I do not agree that safety committees should be merely advisory. If its action does not entail large expense, and if it is a joint committee, it should have authority to complete a job quickly without submitting it to top company executives. Workers would be more safety-conscious if they knew the committees had this authority."

Ed Sorger, safety and claims advisor to St. Regis Paper Co., interposed the suggestion that "safety committees ought to refrain from a show of authority when it is not necessary. There is plenty of authority to require corrections in the state law, when needed."

Wilfred Bowers, union representative from Port Angeles, suggested that an engineer should be on the safety committee to counsel the committee on corrective actions, "as sometimes a new safety guard is more of a hazard than the original condition."

This debate on "authority" went no further and there was no specific action taken, but certainly many of the delegates must have recalled at the time the very cogent statement on this subject which Mr. Hartwig made on the previous day, to-wit:

"Employers in order to make a success of their business and thus insure continuity of job opportunity, must have the control and direction of their equipment so that it may be used to best advantage in the production of articles of commerce. Be-

PARTICIPANTS IN THE Washington State Safety Conference (left to right): S. W. GRIMES, of Portland, Ore., Assistant Secretary and Field Representative of Pacific Coast Association of Pulp & Paper Mfgrs.; FRANK LOVEGREN, of Spokane, Personnel and Safety Supervisor, Inland Empire Paper Co.; EVAN WOOD, Personnel and Safety Supervisor, Everett mill, Pulp Div., Weyerhaeuser Timber Co., and HAROLD FRETZ, of Olympia, Training Supervisor for all Rayonier mills.

CONFEREES AT WORK in what was understood to be first time unions and management sat down together to work out comprehensive safety policy and program. These scenes were at Hotel Olympian, Olympia, Wash., and gentlemen are all from Washington state mills, with a few state officials as guest participants. The speaker (standing, near center) is Earl N. Anderson, director of State Dept. of Labor and Industries and seated next to him is Vice Pres. Alexander Heron of Crown Zellerbach Corp., long known affectionately as the "Silver Fox" of Pacific Coast labor negotiations.

cause only if they can have that freedom to use the equipment can they hope to be in a position to meet competition from others."

Shop Stewards

The discussion of shop stewards on the second day also brought out some different points of view. This was led by two union international representatives, Oren Parker for the Pulp, Sulfite and Paper Mill Workers, and Al Brown, for the Paper Makers. As previously stated, the injection of union stewards in departments of plants is rather new in this industry and Mr. Brown emphasized this in saying that some management executives "don't know what a shop steward is."

He held that shop stewards should be consulted by supervisors on causes of accidents and how they can be corrected and that the stewards should acquaint employes of hazards.

S. W. Grimes, assistant secretary and personnel field representative for the Pacific Coast Association of Pulp & Paper Manufacturers, said the attitude toward this new factor in safety management—the steward—"depends 100% on the shop steward."

He said "a big share of the steward system breaks down because of the steward's lack of qualifications."

Mr. Brown had previously pictured the ideal steward as a man "of open mind, sound judgment and with courage to tell the truth, even when it isn't popular," but he then asked Mr. Grimes if he was referring to the personal character of stewards. Mr. Grimes said, "No, I'm talking about his training and the union's responsibility that he be properly trained."

Fred Pontin, first aid training instructor for Crown Z mills, cautioned that "stewards should not usurp the duties of safety committees." and added: "It depends on how a steward acts as to how the foreman will react. The steward's duties in safety matters should be definitely outlined."

William Hudgins, union delegate from Weyerhaeuser's Everett mill, defended stewards as builders of

(Continued on page 42)

Congress Topics—Salvage Operations And New Pulp Logging Equipment

The Pacific Logging Congress held in Banff, Canada, in the heart of the Canadian Rockies, early this summer, drew a scattered number of pulp and paper industry officials but there were some discussions of really prime interest to this industry—relating to wood salvage operations in logged-off lands and on the development of mechanical equipment for pulpwood production.

Elected new president of the congress is man who has been a leader in many discussions in the west of re-logging or pre-logging—Everett G. Griggs, president of St. Paul & Tacoma Lumber Co. (our June issue carried a remarkable aerial picture of selectively clear-cut stands of this company near Mt. Rainier in Washington State).

Gordon Godwin, of Quebec North Shore Paper Co., Baie Comeau, Que., an outstanding authority on woods mechanization in that region of the continent, gave a detailed discussion of some new equipment for this purpose. His talk follows on this page.

Axel J. F. Brandstrom, consulting forester, who is now particularly engaged in developing timberlands serving St. Regis Paper Co., Tacoma, gave a paper disclosing that there have been startling returns from re-logging by Crown Zellerbach Corp. in Oregon. He said Crown Z's salvage operations are now on a large scale production basis. (See page 64.)

Mr. Brandstrom, until recently forester for Crown Z, said that company is going in with smaller equipment than used in primary operations, and taking out a new crop.

In the Pacific Northwest region he said, several companies are going ahead with similar projects. Production, as a result of this re-logging, he said, eventually may be increased some two billion feet a year(equivalent to about 4,000,000 cords).

George L. Drake, Simpson Logging Co. vice president, whose company is building a new pulpboard mill at Shelton, Wash., said the Pacific Coast "is commencing to realize the value of its young stands of timber."

A. Koroleff, woodlands manager for Canadian Pulp & Paper Association, Montreal, spoke on wood utilization and suggested the industry appoint a standing committee on research to stimulate and promote more effective technique in the woods. (See page 38.)

EVERETT G. GRIGGS, of Tacoma, Wash., new President of Pacific Logging Congress, who is one of the active leaders in planning for closer timber use and salvage logging in the western timber region.

Closer utilization and good protection are not alone sufficient to insure future supply, he said, and suggested silviculture is imperative and practices that will encourage prompt natural reforestation.

A feature of the congress was a Sunday service conducted by R. G. LeTourneau, who mixes religion with his business as manufacturer of tractor equipment.

John Wahl, Weyerhaeuser Timber Co., George O'Brien, Powell River Co., and Mr. Koroleff were men whose affairs are connected with this industry who were elected directors of the congress.

Mr. Godwin began his talk by explaining why it has been hard to replace "muscle power"—men and some 22,000 horses—in the annual production of some 8,000,000 cords of spruce and balsam pulpwood from the Laurentian Plateau, the "black spruce swamp" of Northern Ontario, the rich South Shore lands of the St. Lawrence River and the rolling woodlands of the Maritimes. The average production, he said, was only 4,000 f.b.m. (about 8 cords) per acre of pulpwood averaging stump diameter of 9 inches. "Manhandlings" of wood, he said, was four to seven times.

Then he launched into a discussion of new developments. This portion of his talk follows:

Mechanical Equipment in Canada

By Gordon Godwin

Quebec North Shore Paper Co., Baie Comeau, Quebec.

Buying a fleet of trucks or tractors, or a carload of power saws, isn't going to solve anything. The task of logging calls for specialized equipment of new design, and the mechanization of every phase of eastern logging is going to take a lot of study, a lot of time, and a large amount of money. In the meantime a start has been made and there are machine types in use or under development which look promising.

Trucks and Tractors

The use of trucks for hauling pulpwood at distances from two to 25 miles is spreading rapidly. On one of the large operations of the Quebec North Shore Paper Co. about 60% of the cut was truck-hauled last winter as compared with 20% five years ago. Nearly all hauling is done in winter on snow and ice roads and most operators still use trucks of about 15,000 lbs. G.V.W. with a torque of about 200 lbs. ft., and an overall reduction of about 50:1. Because most of the wood is hauled on sleighs, obviously a towing truck with these specifications is too light for the job. Many operators are now towing their sleigh trains with 4 x 2 trucks of 22,000 lb. G.V.W., 300 lbs. ft. torque and over-all reduction ratios, with auxiliary transmissions of the order of 125:1. Trucks like these hauling on level ice roads handle five sleighs carrying from 25-30 cords—a payload of about 70 tons. A sleigh train truck haul on ice roads provides low-cost transportation—so long as the ice holds. A mid-season thaw, however, or an early spring break-up, can make for very high costs indeed, and in many sections of the East operators are commencing to use semi-trailers, sometimes on snow roads, sometimes on summer gravel roads, or on both.

Bowater's Newfoundland Pulp & Paper Mills were the first to use successfully big Pacific Coast-type tractors and semis. The semis differ from Coast models in that although they use a compensating reach, they also carry a deck, similar to, though heavier, than a commercial semi. Bowaters haul about 20 cords of pulpwood on their units, made up in bundles of 2 cords each.

Bowater's were among the first to use the bundling idea successfully, and have been transporting 4-ft. pulpwood in this fashion for many years on vessel, railcar

and on trucks. The bundling of such small wood, combining many small pieces into large unit loads, is a logical means of handling small timber by mechanical power. The principal is being extended to other phases of logging operations.

Two purely experimental ideas as applied to logging will be tested soon. One operator intends to try out a trailer with large-section, low-pressure single tires instead of duals. It is also expected that a pulpwood version of the successful dirt-moving Mississippi Wagon (shown in accompanying photograph), pulled by an industrial tractor, will also go into operation.

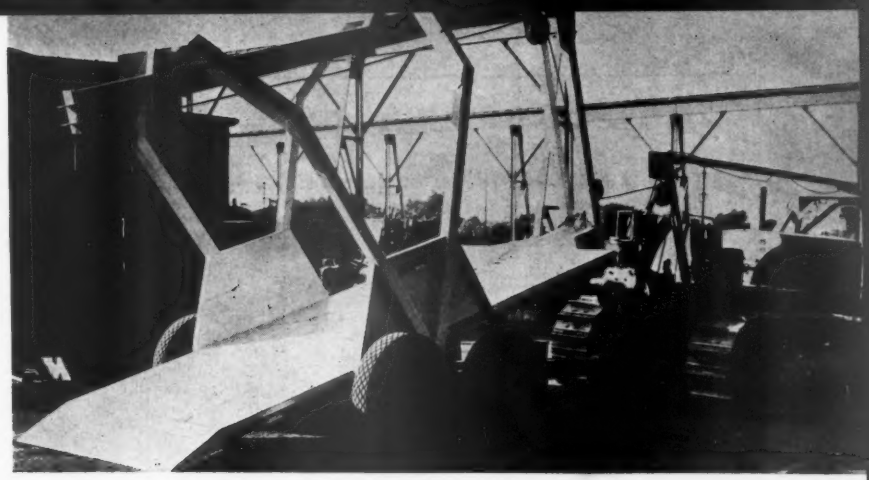
Nothing very startling is being done with tractors. Crawlers with steel tracks are too slow as hauling units and are giving way to trucks, although introduction of fast rubber-tracked machines may change this trend. Some interest is being shown in small crawlers, such as the U. S. airborne tractor, originally developed by the U. S. Forest Service, and in its even smaller successor, the Beetle. Such machines may have value in skidding, replacing horses when ground is favorable. There is also interest in 4 x 4 wheeled tractors and many think that such a machine would find wide application in eastern logging.

Skidders

Skidders in the East are really tiny editions of West Coast gasoline yarders. After many attempts over several years to high lead pulpwood logs with a variety of homemade skidders and with standard tractor double-drums, there is now emerging a machine type that looks promising, possessing high mobility and being economical enough to run so that fixed operating costs are reasonably low in relation to variable costs.

One of the best designs is skid-mounted, driven by a 100 h.p. gasoline engine hydraulically coupled and operating five drums at two speeds. Mainline, haulback, moving, strawline and guyline drums compose the drum assembly. Top speed on the mainline drum is 800 f.p.m. and on the haulback 1400 f.p.m. Mainline is ⅝ inch leading through a 40-ft. A frame and yarding to a maximum distance of 400 ft. A three-man operating crew, as soon as they get the hang of things, is expected to produce about 60 cords a day. Horse skidding at similar distances permits a man-day production of about seven cords per day.

A donkey such as this is readily mounted on an old truck if greater mobility is required. These little machines don't yard "round the tree." They work their way up secondary truck or tractor roads spaced about 800 feet apart. Trees are felled herringbone fashion at right angles to these roads, and bucked into the longest possible logs. These windrows of logs are spaced about 75 feet apart and a windrow on either side of the secondary road is skidded out at one donkey-setting. In an average stand only about 16 cords are decked to each setting. Logs as they come in are landed by the donkey with the aid of the chaser into bundles of about 2½ cords each, and these bundles are hauled away by tractors and various forms of arches or bummers. The donkey has to move frequently, but such moves, except when moving from one secondary road to another, are rarely more than 75 feet. The unit and its rigging is so light that these moves can be made in less than 10 minutes.



TILTING ARCH OR "GOBLIN" trailer, developed by Ontario Pulp & Paper Co. and under field trial now in eastern Canada. A complete description of this new machine is given in this article. It operates like an arch, but carries bundles of small logs clear of the ground. A secondary winch line providing power unloading is not shown in this photograph.

The movement of wood from stump to road whence it can be truck or tractor hauled is the most important part of the whole logging operation in the East, and the development of small highlead donkeys adapted for our conditions promises to supply an answer to the problem of increasing production in many types of timber and terrain.

A great deal of consideration is being given to the operation of these machines as affecting silviculture. One important reason for logging a single skidding road on either side of the secondary road is that in so doing advance reproduction is not destroyed. Reproduction on the skidding roads is of course destroyed but to no greater extent than under conventional horse strip-logging methods. On skidding roads ripped up by high-lead methods mineral soil is exposed, something that seldom happens with horse-logging systems and as a result, spruce reproduction is expected to predominate on such skidding roads, tending to provide a better balance in the spruce—balsam ratio of the young stand.

Arches

Many attempts at arch-logging in summer have been made but with the exception of the operation conducted by Price Brothers on the south shore of the St. Lawrence none of them have proved successful. Most arch-logging jobs failed to provide lower costs or increased labor productivity as compared to conventional winter horse-logging methods, not because of anything seriously wrong with the arch operation itself but because skidding by horses to bunch arch loads was the high-cost, low-output bottleneck slowing down production. The use of small donkeys described earlier promises to overcome this difficulty and as mechanical skidding methods are applied, tractors and arches as roading units may be widely used.

The type of arch used is known in the East as a sulky and is simply a small version of the Pacific Coast arch traveling on large pneumatic-tired wheels instead of crawlers.

A completely new machine—the tilting arch trailer (see page ....) has been developed by the Ontario Paper Co. and is under field trial now. This consists of a tilting platform mounted on a single axle traveling on pneumatic-tired wheels arranged two in tandem on walking beams. Two arches rising from the platform carry an overhead monorail on which travels a sheave and through which passes the tractor mainline. The tractor carries a standard and an auxiliary winch. From the auxiliary winch a second line runs over idler sheaves mounted on the arch monorail structure, doubling under the afterend of the monorail and dead-ending on the traveling sheave. Thus power is provided for loading and unloading. In operation this machine (named the Goblin) is backed up to a 2½-cord load of long logs. With the traveling sheave at the end of the monorail, the mainline is hooked to the single choker binding the bundle of logs. As the mainline winch is engaged the platform, arch and monorail assembly automatically tilt into loading position and the load is pulled onto the inclined platform which settles back to horizontal as the load is pulled ahead. To unload, the mainline is unhooked, a tag line from the traveling sheave is hooked on, the auxiliary winch is engaged, and the load is pulled off backwards with the platform tilting to facilitate discharge. The bundle of logs is handled throughout the operation as a unit package.

The advantage of this machine over any standard arch is that with the load carried free of the ground, drawbar pull requirement is reduced by half, or even more, depending on ground conditions, and much faster travel speeds are possible. Pulled by fast 4 x 4 wheeled tractors this machine may prove to be an important advance, combining features of arch and truck logging, when used in transporting unit packages of small logs.

Loaders

A most ingenious machine for loading 8-ft. logs is the Drott loader manufactured by Hi-Way Service Corp. of Milwaukee, and designed for operation on most makes of crawler tractors. The design has not yet been modified successfully for handling 4-ft. pulpwood and has limitations in the loading of 8-ft. wood in that the machine cannot load a truck or trailer with a platform longer than 16 feet. There is a great need for a loader that will handle 4-ft. wood piled alongside road onto trailers or sleighs.

Power Saws

Interest of eastern loggers in chain saws is mainly centered upon 1-man machines. In felling and bucking timber as

LOGGING RESEARCH IS NEEDED

(Excerpts from talk by A. KOROLEFF, Manager of Woodlands Section, Canadian Paper & Paper Assn., before 1946 Pacific Logging Congress at Banff, Canada).

A. Koroleff

It is a pity that in logging, in striking contrast with some other fields, not nearly enough research is conducted.

Improvements in technique of logging have been coming mainly through small changes that result from accretion of experience, but such progress is slow. To advance faster and with assurance that sound trends are followed, we need more research, by qualified men, with appropriate facilities and with greater use of theory—before judging practical possibilities.

Great importance of logging in the economic life of our countries and the dependence of our future wood supply on its methods should certainly justify it.

Let us take a few examples of logging problems of such importance and magnitude that neither a busy logger nor a manufacturer concerned mainly in the wider use of his present logging machinery would be likely to solve:

1. What is, theoretically, the best method of skidding logs? The hardest way is fully to drag them over the ground; the highlead is next; but the best would be such a skyline as does not exist, and as would permit lifting logs practically straight up and skidding them at high speed, without any hangups, breakage and, in the case of selective cutting, without damage to the trees that should be left standing—above their tops. Is it feasible, at least in smaller timber?

2. What is, theoretically, the best source of power for logging? You are bringing oil all the way from the Southern States, even to North British Columbia, to run logging machinery. Could it pay to get power from burning logging slash, to convert it into producer gas or electricity, instead of merely destroying that slash by burning or leaving it—in either case at risk of loss of green timber and of handicapping regeneration?

3. Oil still is fairly cheap but gravity force is free. Is it, theoretically, sound to use power transportation—with two-way traffic—for the wood that should come down a steep mountain slope? Would it not be preferable to fully depend on gravity—with one way transport—if more suitable equipment and techniques than those known at present were developed?

small as ours the advantages of a 1-man saw as compared to a 2-man model are obvious. Many companies continue to experiment with various models of light saws but so far no machine has appeared which can out-produce a man with a buck-saw when wood is felled, bucked into 4-ft. lengths and piled on strip roads. The saws are not yet reliable enough in operation, but, in fairness to the manufacturers, it must be noted that eastern companies don't pay nearly enough attention to training machine operators and to machine maintenance.

Although there are other developments under way with lightweight saws such as the attention being given to a reciprocating blade design, many operators feel that designing a light power saw is far less important than the development of skidders, loaders and of slasher saws which will buck long logs into 4-ft. wood at the final landing. Existing types of slasher saws cutting up logs concentrated at a landing can buck wood far more cheaply than any conceivable type of 1 or 2-man power saw operating in the woods. Felling trees averaging only 8-9 inches at the stump occupies such a small portion of the time cycle required in moving wood from tree to landing that machine development in this phase of the operation is not so pressing as is demand for other machine types.

Basic Mechanization Method

Although the whole process is still in the experimental stage, a basic operating method with mechanical means is beginning to appear that will function something like this:

Trees will be felled with 1-man power saws weighing about 35 lbs. Logs in lengths, of not less than 25 feet will be skidded out by small highly flexible, high-speed donkeys, and bunched in bundles with pre-set checkers on secondary roads. High-speed all-wheel-drive tractors with improved arches will haul log bundles as unit-package loads either to final landing on waterways or to intermediate landings on main truck roads. In this latter case the bundled logs will be loaded by pneumatic-tired self-propelled cranes onto semi-trailers handling from 10 to 20 cords for hauling to final landing. At the final landing single or multiple-saw slashers will buck into 4-ft. wood. There will be differences in method as demanded by local conditions but probably within ten years a large proportion of eastern pulpwood and sawlogs will be handled with some variation of this method.

Collective Industry Effort

The engineering job entailed in mechanizing logging operations in the East is in itself a major undertaking, but even if perfect machines became available tomorrow, a couple of years would be required to train and accustom labor in their use. Taking a teamster, who has never handled anything more complicated mechanically than a horseshoe, and trying to make a donkey puncher out of him, is a job that will take some time. A major project such as we are undertaking consists of three important phases:

1. Machine design.
2. Proving the machines.
3. (Most important.) Labor education—not only training men in use and maintenance of power equipment but also winning their cooperation and acceptance of the whole idea.

The pulp and paper industry, aware of the magnitude of the task, and that results can be obtained in the least time at the least cost by collective effort, is in process of organizing and providing funds for an industry mechanization project. Under sponsorship of the Canadian Pulp and Paper Association, full-time qualified engineering personnel will be assigned to a long term study of mechanization requirements and to machine design and test. Project engineers will represent a large group of participating companies in working with machinery manufacturers on new designs and on improvement to existing machines. Individual companies may wish to continue with specialized developments of their own, but common design problems will be worked out by project personnel.

Some of the more enthusiastic supporters of this plan are urging that the project establish an industry proving ground where engineers would be stationed with suitable testing equipment provided, where new machine types could be tested and developed, where manufacturers' engineers could attend field trials and where key labor groups from participating pulp and paper companies could be trained in the use and maintenance of new machines. Naturally the final proof of any machine is "on the job" performance but operation of such a proving ground would provide many a shortcut both for our industry and for machinery manufacturers.

Must Increase Farm Wood to Make It Pay

In order to make farm wood lots pay, farmers must plant an average of two-thirds more trees than they now have per acre, declared H. J. Malsberger, forest manager of the Southern Pulpwood Conservation Assn., Atlanta, Ga., at the Oklahoma City meeting of the Southwest Chemurgic Clinic. Malsberger said that if farm wood lots are properly handled, they will yield a good profit to their owners.

Cu. Ft. Measure Required

All pulpwood in North Carolina now must be bought and sold on a regular cord basis of 128 cu. ft., under a new state regulation. A 1945 regulation permitted the use of the unit of 160 cu. ft. through May 31, 1946.

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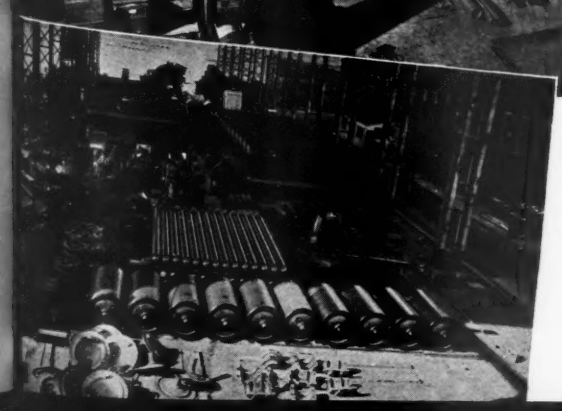

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During the next eighteen months these machines will go into production in North Carolina, Massachusetts, Florida, Georgia, New Hampshire, New York, and California, as well as in Mexico.

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FIBREBOARD PROGRAM FOR COASTWIDE EXPANSION

A tremendous swing of paperboard-using industries to the Pacific Coast, including General Mills, three big drug packers and others, and the upsurge of many new frozen foods industries in the west, are the reasons behind a $24,000,000.00 three-year expansion program of Fibreboard Products Inc., announced this month by D. H. Patterson, Jr., president of the company.

New mills are to be built and additions made to existing plants which will add an estimated 1,000 regular employes to Fibreboard's present 5,000 persons, bringing the company's payroll to more than $16,000,000.

Robert Bundy, general operating manager of San Francisco, gave a few more interesting details on the program at a Fibreboard Pivot Club dinner in Port Angeles, Wash., to which PULP & PAPER INDUSTRY was invited. Vice President Noel Bland also attended.

Largest single project is the erection of a new pulp mill and two-machine board mill and converting plant on the south bank of the San Joaquin River about two miles east of Antioch, Calif. This project, which will be known as the San Joaquin division of Fibreboard, will add over 200 tons per day to the existing board mill capacities. The company has acquired 95 acres on the mainland and a 155-acre island in the river for the new plant. This site was selected for its several natural advantages for a mill of this type, its relation to other plants of the company in this area and proximity both to sources of raw material and to markets for its finished products. This project alone, when its first unit is brought into production early in 1948, will give regular employment to over 400 people and will add 23% to the company's production.

Great pine stands in California will largely supply the pulpwood for this mill.

Second largest development in the program is of a new plant for its wholly-owned subsidiary, Glass Containers, Inc., for manufacture of glass bottles and jars. Already well advanced in construction, this plant is being erected on a 20-acre tract of land at Antioch and will provide regular jobs for 200 people. Its output will add over 36,000 tons annually of glass for foods and beverages to Glass Containers' present output. Also, a further investment is being made at the original Glass Containers' plant at Los Angeles for additional machinery and equipment.

To supply both these plants still another subsidiary, Nevada Silica Sands, Inc., was recently purchased and is building a completely new silica sand washing and refining plant on the site of its present operations at Overton, Nev. The company owns large glass sand deposits near Overton, sufficient for many years' supply.

This year Fibreboard added many thousands of acres of land to their timber holdings, including the timber and complete logging and operating facilities of the Crescent Logging Co., located on the Olympic Peninsula, in Washington state, as was announced in a recent issue.

These properties are intended to assure wood supply for the Port Angeles mill, which makes a product all the other Fibreboard mills want and need—that is, pulp. The San Joaquin division will be the second unit of Fibreboard's many mills to make pulp.

Fibreboard also has acquired the Container Transport Co., with a fleet of 60 trucks to serve the Vernon, South Gate and Sunset mills and converting plants of Fibreboard, in the Los Angeles area, and the Los Angeles plants of Glass Containers, Inc., and Independent Paper Stock Co., the latter also being a wholly-owned subsidiary.

At Stockton, a new power plant, including a 3,500 k. v. a. turbine, is being installed and additional buildings and equipment are also being planned which will increase the shipping container output by 75% and the carton output by 50%. At Fibreboard's present plant at Antioch, a new power plant is being erected and additions to the carton department and the corrugated box department of the plant will step up the finished-goods output by 50%.

The Vernon Division at Los Angeles recently acquired more acreage adjoining its present location to provide for future plant development and is now adding equipment for a new carton paperboard-coating operation—first in the Far West. At Port Angeles, an installation to convert boilers from hog fuel to fuel oil, provide adequate oil storage capacity and provision for receiving oil direct from tankers, is being completed. Additional new buildings and equipment for increasing production are also planned at Fibreboard's Sumner (Wash.) mill.

In Portland, Fibreboard has already acquired acreage upon which to construct a new carton plant as soon as material and machinery are available, to increase the present Portland division's output 50%.

When this expansion program is completed, Fibreboard will have seven paperboard mills and nine converting plants, strategically located to best serve the three major industrial areas of the West—five in the Seattle-Portland area, seven in the San Francisco Bay area, and four in the Los Angeles area.

Big % of U. S. Paper Expansion On Pacific Coast, Pivot Club Hears

Present plans of the United States industry call for a 10% increase in wood-pulp production and an 11% increase in paperboard.

Compared with a nationwide 10% pulp increase, there will be a 23% increase in the pulp production of the Pacific Coast alone (the three Pacific Coast states already are producing more than 15% of U. S. pulp.)

Compared with a nationwide 11% increase in paperboard, there will be an 18% increase in Pacific Coast paperboard output (the Coast states are now producing about 10% of the national total.)

Of 27 new papermaking machines scheduled for delivery to U. S. mills in 1946 alone, nine machines—or one-third of the total—will go to Pacific Coast mills (six of the 27 machines are for board products.)

This analysis of expansion from the point of view of the board industry and the Far West was presented by Robert Bundy, general operating manager of all Fibreboard Products mills at a Pivot Club dinner in Port Angeles on Aug. 8 (for further data on expansion see the 1946 NORTH AMERICAN REVIEW NUMBER of PULP & PAPER INDUSTRY, pages 42-49 inch.)

Mr. Bundy, who is assistant to N. M. Brisbois, vice president in charge of operations, came from San Francisco with T. Noel Bland, vice president and assistant general manager. They had attended a similiar dinner for Portland, Ore., Fibreboard employes a few days earlier.

Verne Basom, resident manager, presided at the Port Angeles dinner, and W. E. Breitenbach, Rayonier vice president, and R. A. Dupuis, manager of

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Mills: Hoquiam, Port Angeles and Shelton, Wash., and Fernandina, Fla.

Crown Zellerbach's local newsprint mill, were among guests.

Mr. Bland said in the future he hoped to make more frequent visits and he brought greetings from "Dave Patterson, your president and an old plant man himself."

Mr. Bundy related how many industries now are moving westward, some of them being important paper users. He said:

"Three of the largest packers of drugs are moving west. A garmet industry is being started. Printers and publishers are building big Coast enterprises. General Electric is building two plants in California and General Mills will have a new plant on the coast. A leader in soap industries, Lever Brothers, is planning a plant in the west."

Referring to the big development in frozen foods, Mr. Bundy said that on the Pacific Coast, paperboard mills were producing only about one-half of that booming industry's present demand for cartons in that area. He emphasized the tremendous possibilities in frozen foods expansion, by pointing out that "less than 1% of freezable crops are being frozen this year."

Fibreboard mills presently producing all the paper milk bottles in the Far West, he said, but this is only about 40% of expected future demand.

Mr. Bundy was master of ceremonies in presenting service pins. As usual in these affairs, as conducted by Fibreboard mills, the heads of various departments were called upon to make the actual presentations. Almost half of the awards were to men in the mechanical department, made by Art Benson, master mechanic.

Twenty-year pins went to Charles Hockey, sulfite cook; Charley Keller, millwright; Jim Avery, pipefitter; Henry Waldron, watchman; Wano Hendrickson, and George Boyd, mechanics, and H. O. Biglow.

DAVID H. PATTERSON, Jr., President of Fibreboard Products Inc., who announced program for new pulp and board milll at Antioch, Calif., new glass plant at Los Angeles and 50% expansion at present Antioch mill, Stockton and Portland plants. First coated board in west to be made at Vernon division. California pine stands will supply new pulp mill.

Among others were a 15-year award for Jim Shell, electrical engineer, and a 10-year award for Glen Gordon, finishing and shipping foreman and one of the most rapidly promoted young men in the mill.

Management-Labor Safety Conference

(Continued from page 35)

harmony in mills, offsetting "the handicap of fellow-workers continuously griping on the job" and he asserted the standing or grievance committees in mills could settle the case of the "shop steward who gets out of line."

Safety Director Bob Andrews of Longview Fibre Co. held that it was sometimes advisable to place stewards on safety committees.

This led finally to a question of who should be required to take first aid. A vote was taken that stewards should be so required, after which Mr. Pontin remarked that no foreman should be allowed to take charge of men with first aid training, too.

Mr. Hudgins thought a first aid card should be required of every employe, just as motorists need a "driver's license," and Frank Lovegren of Inland Empire Paper Co. argued that every employe "should get first aid training." The discussion ended with speakers indicating a belief that voluntary first aid training for the general body of employes is more beneficial than required training.

Opening Addresses

In the opening address on the first day, Earl N. Anderson, director of the state department of labor and industries, said "industry years ago had accepted its responsibility in safety matters but labor has not accepted its responsibility."

In emphasizing the importance of safety to labor, he said "the 5,500 widows and orphans we have on our rolls in this state as a result of industrial accidents are the widows and orphans of employes—not of employers."

He recalled an instance of an employer who, promptly complied with request of the state by spending $31,000 in 90 days to "make a safe operation," after which "a worker, who had been repeatedly warned, deliberately violated the rules and wouldn't use the safety measures the employer spent good money to put in, and consequently we have his 17-year old widow and 3-months old daughter on our pension rolls."

A. R. Heron, executive vice president of the Pacific Coast Association of Pulp & Paper Manufacturers, making the opening statement for the employers, said:

"While there is a law covering compensation and requiring certain safety standards, there is no law which can make a worker act and think safely. Machines, sometimes the cause of accidents, do not think. Good safety records depend on a constant education and a search for something that will make a man work, act and live safely."

A report that some Washington officials wish to add to the force of state inspectors lent greater significance than otherwise to a remark by Mr. Heron that increasing the number of safety men will not make plants any safer. Mr. Anderson also had said "putting a safety inspector in a given locality doesn't solve the problem."

Mr. Sherman made the opening statement for the unions, stressing the point that human sorrow and misery would be alleviated to the extent the conference succeeded. He said "both labor and management stand to gain by accident prevention" and quoted from the state safety standards that "accident prevention is a problem of organization and education."

Management's Responsibility

Responsibility of management for a safety program was then taken up, with Mr. Hartwig as the discussion leader. He traced the history of this responsibility, as expressed in laws, and noted that every state in the nation, except Mississippi, now has laws defining this responsibility and providing workmen's compensation.

On the subject of employers' responsibility in regard to equipment, he added: "Obviously, if the employer must for competitive reasons insist upon the right to maintain control of the plant and its equipment and therefore the action during working hours of workers who operate and maintain the plant and its equipment, it follows that no one has a greater obligation to insure the safety of the workers in the plant than does the employer."

Mr. Hartwig said "man failure will be found as a cause of accidents in management as well as among workers."

He emphasized the importance of first aid and urged establishment of eye clinics in industries in order to bring about correction of impaired or faulty eyesight of employes.

John Gavareski, personnel supervisor at Rayonier's Shelton mill, opening discussion, urged that management show appreciation for "the sincerity" of employes' suggestion by explaining to the individual or group when such suggestions are impractical.

Seconding this idea, Mr. Drummond urged "more follow-through on the part of supervisors in regard to suggestions" and Robert Gilmore, Rayonier general safety director, urged prompt action, warning against "harmful procrastination."

Bob Andrews, Longview Fibre Co. safety director, said management should "regard accident prevention as just as important as production."

Jack Robertson, safety supervisor of the Crown Z mill at Camas, said management "should be more emphatic in making supervisors and foremen accept responsibility."

Union speakers criticized supervisors who, "set unsafe examples" and by virtually unanimous show of hands, there was more sentiment shown for making supervisors responsible than any other suggestion at this session.

Ernie Weisner, Port Angeles union delegate, suggested management provide movies showing how specific accidents happen and other union men asked for more information on accidents.

Employes' Responsibility

Vice president Drummond of the Paper Makers union led the afternoon discussion on responsibility of employes. He emphasized that despite all laws and

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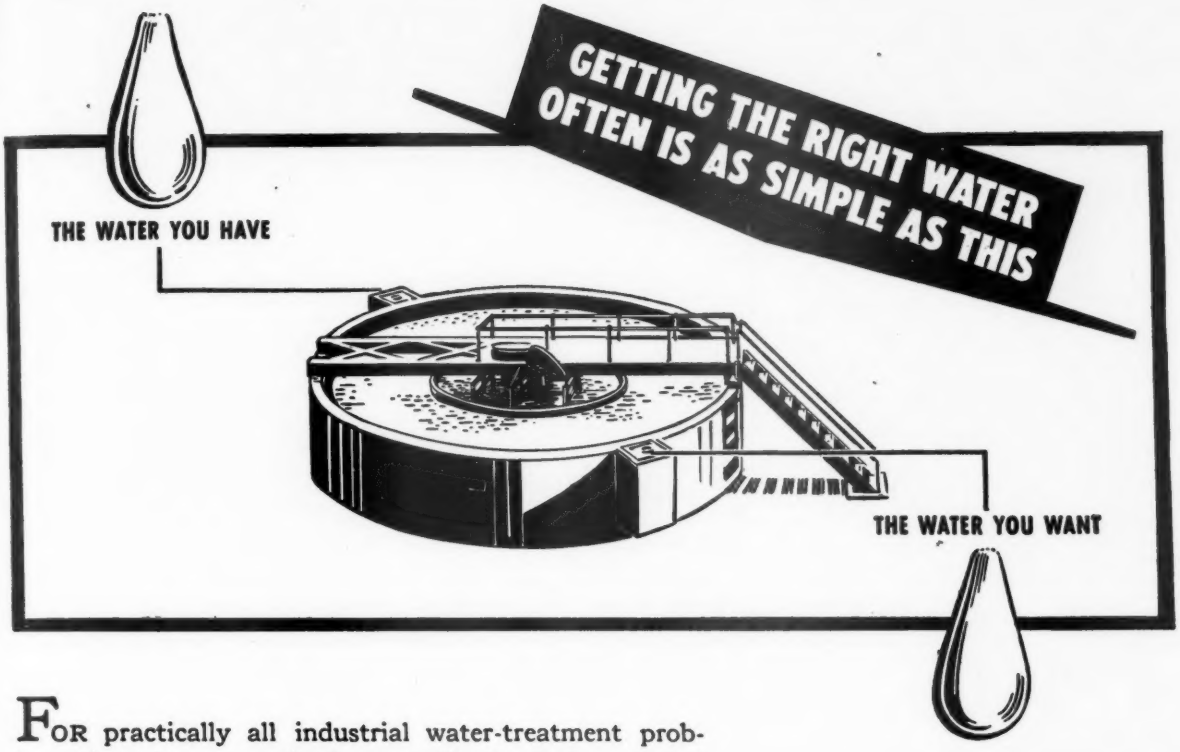

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safety devices, employes and their families still were the ones who suffered as a result of accidents "not only physically, but financially."

Responsibilities of an employe, Mr. Drummond said were: "(1) be alert for new methods of making your job safer; (2) be safety conscious at all times; (3) see that your fellow workers are acting safely; (4) be sure safety rules are posted and memorized, and (5) see that your union maintains a safety committee which reports regularly."

This led to a suggestion that safety committees discipline rule violators, but union delegates pointed to difficulties of getting employes to report infractions and the danger that supervisors might be "unkindly" to a man who makes such reports.

Earl Anderson, union delegate from the St. Regis mill, said safety committeemen should be well known among both employes and management, wearing badges or other insignia.

Evan Wood, personnel and safety supervisor of Everett pulp mill for Weyerhaeuser Timber Co., stressed that "the real job of safety has to be carried out continuously in the mill and is most important to get the message across to new employes."

Dangerous loss of time in written suggestions, difficulties in keeping up committee enthusiasm and embarassment of younger men in cautioning older men were other problems discussed.

Mr. Grimes, of the manufacturer's association, said a foreman should not go into detail in introducing a new man to his job, but turn him over to a safety committeeman to explain hazards, thus stressing importance of the committeeman and his work.

Mr. Drummond mentioned a union local in a California paper mill town which presents complete reports and discussions of every accident at its meeting. He said this was the only union local doing this on the Coast. He said others might emulate it.

Mr. Sherman declared "if a man is fired for unsafe practice, the union can't afford to back him up, but if he does comply the union will back him."

He also said "every employe has an obligation not to be afraid to report any unsafe practices."

State made safety movies followed on this program and these brought out that 75 cents per man-day are lost in Washington state in wages as a result of accidents, and that only a small fraction of this loss is made up in compensation and medical aid.

First Aid

Fred Pontin, Crown Z's first aid instructor, then discussed application of first aid practices and emphasized their importance from a humanitarian point of view.

He cited figures showing accidents were reduced as first aid training was increased. He urged first aid team contests to create interest and asked that management provide all necessary supplies for training. He announced the Crown mills will resume their inter-mill first aid contests, interrupted by war.

A state official said statewide contests would be held, pending legislative approval for a proposed budget.

Government's Plans

At a banquet that evening, W. D. Welsh, executive assistant, Crown Zellerbach Corp., San Francisco, was chairman and principal speaker was Dan Adair, state safety director.

"It was a revelation to me to work with so many industries which are really doing a job for better safety of their employes," said Mr. Adair. "We have had much better than 99% voluntary compliance of firms and, being from labor myself, I was shocked by the lack of cooperation from labor."

He said his department wants to get away from "enforcement aspects" of its work and to offer statistical information, safety movies and "to get more and more into radio broadcasting" to further safety.

"We contemplate setting up a safety code for the pulp and paper industry and hope that we can avoid senseless haggling over details in a public hearing by settling these beforehand," he said.

Safety Committees

The final day's session was launched by R. M. Gilmore, Rayonier Incorporated safety director, opening a discussion of safety committees.

Declaring most accidents "are caused by unsafe practice rather than unsafe conditions," he said the value of safety committees is that they give the employe a "definite responsibility." At such meetings, which should be held during working hours, he suggested emphasis on eliminating unsafe practices as well as to suggestions for mechanical safeguards.

Rayonier Incorporated, he said, makes an effort to select top management personnel to serve on the central plant safety committee of five employer and five employe representatives, as required by Washington state law. In each Rayonier plant he said "the assistant manager and the assistant plant engineer serve, obviating the need of referring many safety matters to the resident manager."

He outlined duties of central and departimental safety committees and stressed that they should be "active" and hold "interesting" meetings.

Jack Barnes, Grays Harbor supervisor for Raynier, suggested educational meetings be held occasionally in place of regular safety meetings. He urged rotating of committee members "so everyone has a chance to work on safety."

Elmer Stubbs, state department official, said his reports indicate committees were hampered by "definite lack of management sincerity and lack of union participation."

Horace Phillips, union delegate from Port Angeles, urged power for committees to require safety corrections and this led to the debate on "authority" which we have already reported.

George Holt, assistant manager of the Rayonier mill at Hoquiam, said his mill have two-color job tickets, one color being for safety corrections, which have preference.

Wilfred Bowers, another Port Angeles union delegate, urged more attention on engineering phases of changes, lest they make a situation more hazardous than it had been.

Discussion of the role of the shop steward followed, as previously reported. The meeting concluded with the decisions for a statewide safety movie and for a phamphlet on the three coast conferences.

It is planned that these joint safety conferences on the Pacific Coast will be annual affairs.

B. C. Safety Men Meet At Ocean Falls

Pulp and paper mills in British Columbia are placing increasing emphasis on the importance of safety in operations, and the newly organized British Columbia Pulp and Paper Safety Association is proving an effective instrument in promoting this policy.

The association met at Ocean Falls, B. C., recently with Cyril J. Hague, personnel director of Pacific Mills, as chairman. Among the speakers were Harry McLean, of the safety department, Workmen's Compensation Board, and R. H. R. Young, manager at Pacific Mills.

Success of Pacific Mills in completing 60 days of operation without an accident was mentioned and 100 days without an accident has been set as a new objective.

Flood in New York

E. E. Flood, president of Pacific Paper Board Co., Longview, Wash., flew to New York City on July 31 because of illness of his brother, Frank. Frank Flood, long time resident of New York City, is vice president of Carnation Milk Co.

Bob Heuer Spends Summer at Wheeler, Ore.

Robert Heuer, shift superintendent at Longview, Wash., pulp mill, Weyerhaeuser Timber Co., and long one of the leaders in the Coast division of the Superintendents Association, has been undergoing treatments for arthritis most of this summer at Wheeler on the Oregon coast.

Wheeler, Ore., is sufficient address for Bob.

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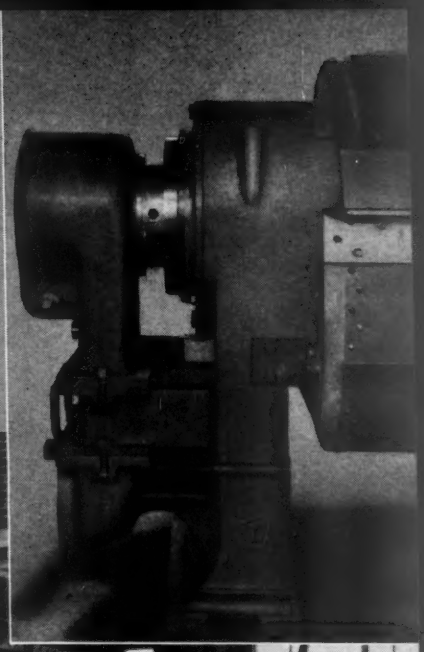

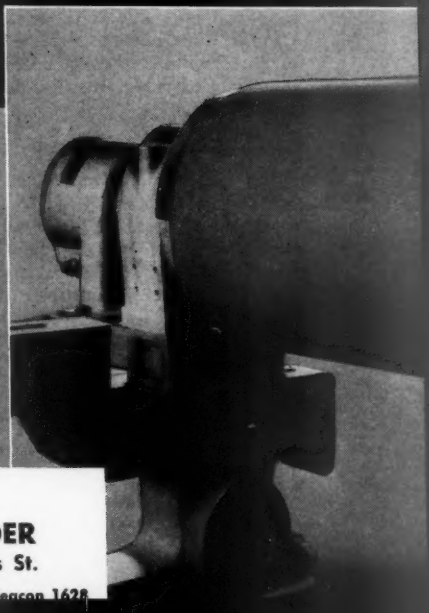

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Champion's Mill Heads Become Division Managers

Top men in various units of Champion Paper & Fibre Co. who formerly held titles of mill managers have now been given the new titles of "division managers."

Homer H. Latimer, the new president of the Superintendents Association, is division manager at the "home" mill in Hamilton, Ohio. Thirty-seven years in the industry began and ended for Mr. Latimer in the Miami Valley of Ohio as his first job was in a predecessor company of Gardner-Richardson. Service with Beckett, Oxford and Mead of Ohio preceded his affiliation with Champion in 1939.

W. R. Crute, has been given the title of division manager for Champion at Pasadena, Texas.

He joined the company in 1917 as a special engineer at the Canton, N. C. mill, later became superintendent of maintenance, construction and power, and was mill manager at Pasadena since completion of the plant. He was its design and construction engineer.

H. A. Helder, named division manager at Canton, N. C., by Champion, joined that concern as a chemist in 1908. In 1920 he was named superintendent of the extract department, and then chief chemist, technical director, assistant mill manager, and finally mill manager at Canton in 1939.

Now in Palatka

Sam Siegel, who was mill manager of the Moore & Thompson division of Hudson Pulp & Paper Company prior to his transfer to Palatka, has acquired a new residence there.

Richardson Becomes Manager at New Mill

J. L. Richardson, general superintendent of Gulf States Paper Corp. Tuscaloosa, Ala., left employ of that company recently to become production manager of the new mill of Hudson Pulp and Paper Corp. now under construction at Palatka, Fla.

Mr. Richardson started his papermaking career at Orange, Texas, in 1911, under the direction of the late Edward H. Mayo. In 1914 he went to Southern Paper Co., Moss Point, Miss., in 1916 joined E-Z Opener Bag Co. predecessor of Gulf States Paper Corp. at Braithwaite, La., and in 1917 entered employ of Champion at Hamilton. O., but left there shortly thereafter to serve in the army. In 1919, he re-entered employ of E-Z Opened Bag at Braithwaite, winning promotion to night superintendent and assistant day superintendent. During building of the mill at Tuscaloosa, Mr. Richardson was transferred there, in 1928, and was named general superintendent in 1932.

Harold E. Walker Dies at Asheville

Harold E. Walker, 45 years a papermaker, passed away on June 28, in Asheville, N. C., after a week's illness. He was 63.

Mr. Walker for the past 12 years was production manager of paper mill, board mill and pulp machine operations of the Canton division of the Champion Paper & Fibre Co. Born in Connecticut, he was vice president of the old Reading Paper Mills and served in supervisory capacities for Eastern Corp., Jessup and Moore, Chemical Paper Mfg. Co., American Writing Paper and several other mills in the Holyoke area. An early member of TAPPI, he was also active in the Southeastern division of the American Pulp and Paper Mill Superintendents Association.

Miss Kiely Has Hospital Siege After Accident

Helen U. Kiely, long a leader in TAPPI and chief chemist of the American Writing Paper Corp. of Holyoke, Mass., was seriously injured in a head-on automobile accident on the highway in Northampton, Mass., on June 29. About a month later, she was still in hospital but improving. A leg was fractured and she suffered lacerations.

Northwestern Division Plans Two-Day Meet

The Northwestern Division of the Superintendents Association will meet in Appleton, Wis., Sept. 20-21, it is announced by F. X. Kreiling, secretary of the division and superintendent at Thilmany Pulp & Paper Co.

BenMont Papers, Inc., Buys Adams Paper Co.

A controlling interest in the Adams Paper Co., Wells River, Vt., has been purchased by D. C. Hurlbut, president of BenMont Papers, Inc., Bennington, Vt., converters of waxed papers, gift wraps, and paper draperies. Mr. Hurlbut told Pulp & Paper Industry that the Adams mill has been acquired to meet an increasing demand for BenMont products and the purchase will not affect tonnage now furnished by other mills. George W. Bidwell continues as manager of Adams.

Adams Paper Co. is a tissue mill specializing in high grades in white and color for jewelry wrapping. Large tonnages of this have been purchased by BenMont in the past for packaging and sale to the retail trade. Its capacity has been rated at 10 tons per day.

Strathmore Employes Honored by U. S. Treasury

During the second World War, Strathmore Paper Co. employes at West Springfield, Mass., purchased a total of $226,750 worth of bonds, an average of $550 per employe—in addition to making quantities of bond papers for priority war use. Because 147 men and four women joined the services, remaining employes took on additional work loads.

This month Uncle Sam showed his appreciation with an official commendation from the United States Treasury Department. Said George E. Williamson, president of Strathmore: "The employes are entirely responsible for this honor, and it belongs to them."

Mill and CIO Negotiate Increase

The management of Central Paper Company, Inc., Muskegon, Mich., announces that negotiations between the company and the employes as represented by Local 1015 United Paper Workers, CIO, has ended with acceptance by the workers of an 8 cents an hour increase retroactive to July 1st.

The company manufactures a line of specialty custom built papers to exacting specifications.

Holman Joins Canton

Harold E. Holman, previously a section chief of WPB and later with CPA in a similar capacity, has joined the Champion Paper and Fibre Company, Canton. N. C., as a logging engineer.

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TRENDS IN BLEACHING CHEMICAL WOOD PULP

By Dr. John D. Rue

Of
Hooker Electrochemical Company,
Niagara Falls, N. Y.

A paper presented at Supts. — TAPPI Joint Spring Meeting, Gearhart, Ore., May 18, 1946.

Some of the high spots in the present status of bleaching can be briefly summarized as follows:

Direct chlorination of pulp has become a standard part of almost every process use to bleach chemical pulps to high brightness—regardless of kind of pulp or of species of wood used. It is even used for bleaching flax straw pulps which are to be used for cigaret papers.

The processes of bleaching have become more complicated. Three stage processes, one of which is caustic extraction, are coming into use for sulfite, and 6- or 7-stage processes are accepted without much question for bleaching sulfate pulps for products of high brightness and high strength.

Bleached sulfate pulps are competing successfully with bright bleached sulfite pulps and are frequently preferred by reason of their superior strength and toughness.

Semi-bleached sulfate pulps are competing vigorously with unbleached sulfite for wrapping and bag papers, again by reason of superior strength and of the ease with which better brightness can be obtained.

Numerous new pulp mills have been recently or are being installed or designed for the production of bright bleached pulps. Some are for mills now producing or using bleached sulfite. In nearly all cases the new mills will make the pulp by the sulfate process.

The trend, therefore, seems definitely to be away from sulfite and toward sulfate in the expansion of bleached pulp which require new mills.

The present trend also appears to be toward the use of continuous flow, rather than toward batch, bleaching.

Equipment - chlorinators, bleachers, chemical reactors (other than bleachers), pulp washers, etc., have been greatly improved and to some degree standardized to a few major types.

Equipment suppliers — at least three of them—appear to be in position to take over, if desired, the entire job of providing process and equipment, of installing the system and of starting its operation.

Procedures In Bleaching Processes

There are basically the following procedures which are assembled in various combinations and sequences to make up the bleaching processes in current use or under consideration. In any given process some of the procedures may be omitted and some may appear more than once:

1. Chlorination
2. Caustic Extraction
3. Water Extraction (soak)
4. Oxidative Bleach (Hypochlorite, chlorite, peroxide, etc.)
5. SO_2 Treatment

In the bleaching of pulp for use in the dissolving industries there may be introduced still other procedures such as treatment with muriatic acid but bleaching for such purposes is a high specialized branch of the art and will be referred to only briefly in this discussion.

Chlorination

Chlorination is a procedure that is used in nearly all bleaching processes for the production of high white chemical wood pulps regardless of method of pulping or of species of wood used.

Sulfite and sulfate pulps differ radically in their response to chlorination. In the case of sulfite the Cl_2 reacts very rapidly even at temperatures well down toward 0°C. In a period of 5 minutes the amount of Cl_2 that can be added and almost completely consumed is about half of the total amount required for the entire bleaching process. From a viewpoint of brightness and strength of product or of economy of Cl_2 consumption, it makes little difference whether chlorination consumes 40, 50 or 60% of the total Cl_2 used.

For sulfate pulps, however, the temperature should be 25 to 27°C. The amount that can be absorbed in about 5 minutes of chlorination time will be approximately 45% of the total for the entire bleaching process. If, however, an excess of Cl_2 is added and the unconsumed Cl_2 remaining after 5 minutes chlorination time is converted to hypochlorite by the addition of lime, about 90% of the total can be added in the chlorination stage.

Some economy in the use of Cl_2 and of lime can be obtained by a short chlorination using about 45% of the total followed, after washing out the products, with a chlorination using lime at the end of 5 minutes chlorination reaction. The total in the two chlorinations would then be still about 90% of the total for the whole bleaching process. The alkaline phase in each case would require 60 to 90 minutes. There would be no washing of the pulp between the acid and alkaline phases.

Equipment is available from various suppliers for either batch of continuous flow chlorination and also for the chlorination consisting of both acid and alkaline phases.

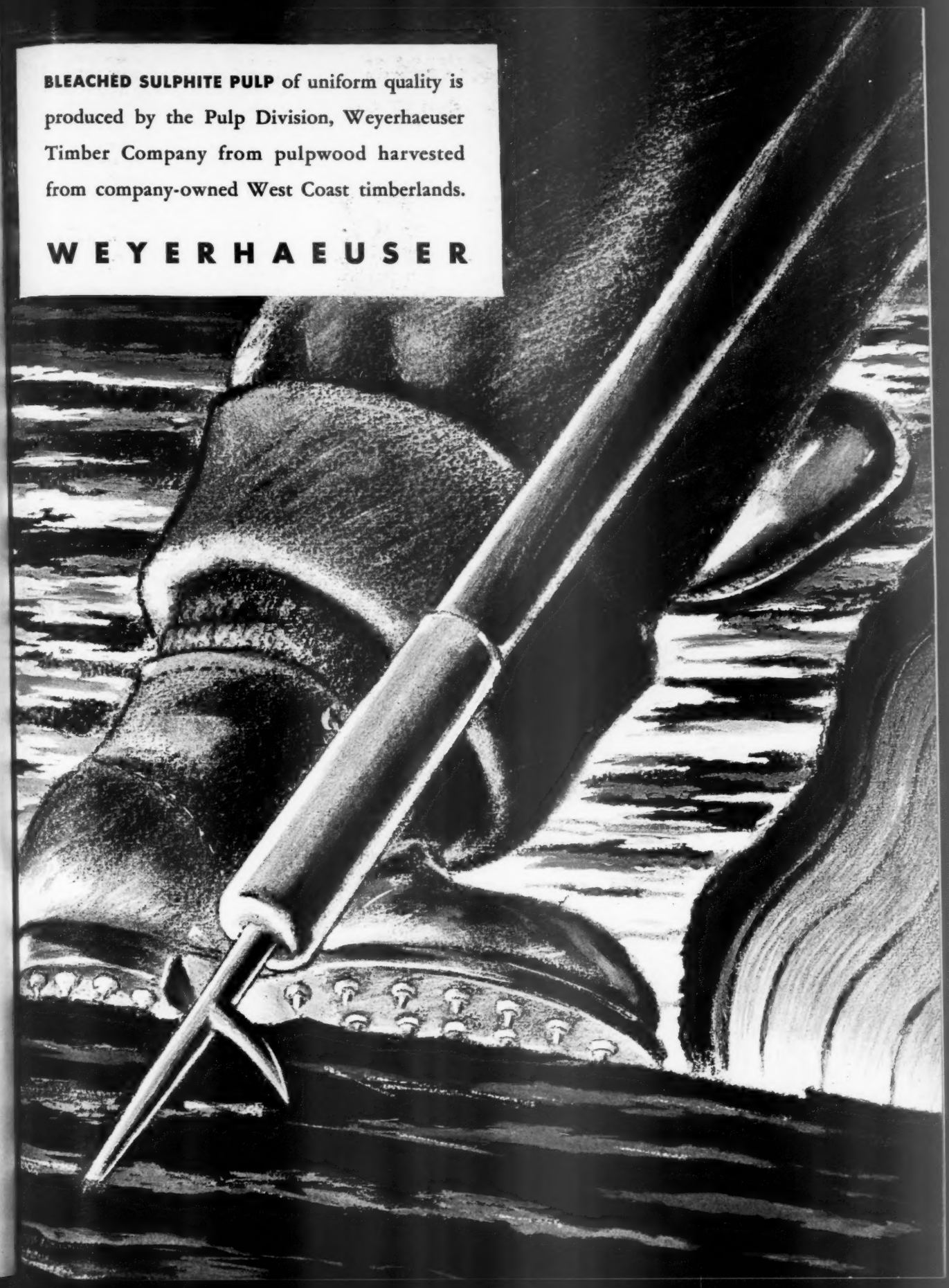
Caustic Extraction

Caustic extraction is applied under a variety of conditions depending on the kind of pulp and on the purpose of the use.

In the bleaching of sulfite pulp for papermaking, caustic extraction, until recently, has not been accepted as a normal procedure. Within the last two or three years, however, it has become recognized as an important factor in the bleaching processes of even those grades of sulfite pulps which are to be used for book, bonds and wrappings. Only moderate temperatures appear to be necessary, there is no economy in consumption of chemicals. For each pound of NaOH used there is a saving of about a pound of Cl_2. The usual caustic addition is about 1 to 2 lbs. per 100 lbs. pulp. Higher proportions and somewhat elevated temperatures are used if it is desired to improve softness, opacity and absorbency.

The normal advantages of using caustic extraction in bleaching sulfite appear to be greater cleanliness, higher brightness and some improvement in the behavior of the pulp on the paper machine.

For high white sulfate pulps, caustic extraction is an essential prerequisite to high brightness. The temperature may be 70° to 80° C for about 1 hour with 1½ to 2½ lbs. NaOH per 100 lbs. pulp. A relatively high consistence is desired in the interest of economy of steam consumption. A consistence of 9 to 10% is satisfactory and can be attained without the use of a high density thickener. The high density thickener should be avoided if possible as


BLEACHED SULPHITE PULP of uniform quality is produced by the Pulp Division, Weyerhaeuser Timber Company from pulpwood harvested from company-owned West Coast timberlands.
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it does not serve well for thorough washing of the pulp from the preceding stage.

Water Extraction

Thorough removal from the pulp of the caustic and of the caustic soluble impurities is essential but not easy to obtain. It has been found, in practice, that the caustic extracted pulp should be washed and then allowed to soak for ½ to one hour at not to exceed about 3% consistence and then given a second wash. The second wash can be done on a high density thickener if the next stage is to be operated at high consistence.

The water soak and second wash are not essential for sulfite pulps to be used for paper making. For those which are to be used for dissolving purposes the water soak and rewash are imperative.

Oxidative Bleach

Hypochlorite is the basic oxidative bleach used for all kinds of chemical wood pulps. Chlorite and the peroxides are recognized as having a place in the bleaching economy but will not be included by the speaker in the present discussion.

There has been considerable discussion in the past of the relative merits of sodium and calcium hypochlorites. There are, without question, some pulps that should be bleached with NaC10; e.g. dissolving pulps whose ash content must be exceptionally low. For paper pulps, it has been the speakers experience that calcium hypochlorite is cheaper and perhaps even better than Na C10, certainly it is equally as good as NaC10.

Too much emphasis cannot be laid on the importance of pH control during hypochlorite bleaching. Too low a pH will result in low brightness and poor strength. Too high a pH will unduly retard the bleaching and result in low capacity of the equipment or even low strength by virtue of the long continued reaction period required to reach the desired brightness.

The favorable pH range is approximately 8.0 to 8.5.

SO_2 Treatment

It has been found desirable, in the bleaching of sulfate pulps, to soak the washed bleached pulp for at least 20 minutes at not to exceed 3% consistence in water containing about 0.75 to 1 lb. $S0_2$ per 100 lbs. pulp. The treated pulp is then thoroughly washed.

The $S0_2$ treatment appears to be essential to a more thorough removal from the pulp of iron and organic impurities. Removal of those materials results in a brighter pulp and a greater stability of brightness.

Designing a Bleaching Process

The industry has made great progress in the last 15 years in its understanding of how to design a bleaching process to meet specific needs.

Sulfite—

Book, Bond, Wrapping, etc. — Process design and processing details are far less critical in bleaching sulfite than in bleaching sulfate.

Economy, quality of product and brightness of product dictate use of at least a two-stage bleaching process viz. (1) Chlorination (2) Hypo Bleach.

A third stage—caustic extraction —between the other two, is claiming increased attention as a means of improving cleanliness of pulp and, possibly, in some cases of improving brightness. Use of NaOH reduces $C1_2$ consumption about lb. for lb., therefore, there is little change in cost for chemicals per ton of pulp.

More drastic extraction — more caustic or higher temperature or both—can be used, when desired, to modify the characteristics of the pulp as e.g. to increase softness, opacity and absorbency and also alpha content.

Sulfite—

Dissolving Grade — Bleaching of this grade of pulp is a highly specialized field. We will merely point out some of the details which differ from those used in bleaching paper grade pulps.

Some of the outstanding characteristics desired in dissolving grade pulps are:

An alpha content that is relatively high and very uniform.

A viscosity that is uniform and of predetermined value.

Uniformity is of paramount importance.

The pulping is so conducted as to yield a pulp of low chlorine demand.

The bleaching process is basically chlorination plus hypochlorite bleach plus a fairly drastic caustic extraction so as to raise the alpha content. An acid treatment may be used to aid in controlling viscosity and in reducing ash content.

Sulfate Pulps—

For High White High Strength-80-86 GEB — Every step in the bleaching process is important if high strength is to be obtained.

Six or seven stages are required for highest brightness and best strength. A stage for purposes of this discussion is a chemical reaction or a water soak concluded by a washing of the pulp. For low brightness fewer stages are used than for high brightness.

The basic stages are (1) Chlorination, (2) Caustic Extraction, (3) Hypo-Bleach, (4) SO_2 Treatment. There may be two chlorinations, two caustic extractions and two hypochlorite - bleaches. These may be a double wash of the caustic extracted pulp.

For Maximum Brightness and Strength — C_aNB, N Hot Sn_2o, B_2Sso_2
or $C_hNSB_1B_2Sso_2$
or $C_aC_hNSB_1B_2Sso_2$
("NS" can be before or after B_1)
For About 70-75 GEB (Substitute for Unbleached Sulfite)—C_hNB.
For About 40-45 GEB—B Only.

Water Supply

If high pulp brightness is to be obtained, too much emphasis cannot be laid on the importance of an adequate supply of water of suitable quality.

The water must be low in turbidity and in color; low in iron and manganese content; and preferably low in hardness.

For processes of 6- or 7-stages, there should be available 60,000 to 70,000 gal. per ton pulp.

The only exits to the sewer should be from the chlorinated pulp washer and from the caustic extracted pulp washer. Flows throughout the process should be countercurrent to the stock flow and lead to one or the other of the two indicated exits. Typical countercurrent systems would be, as indicated by stages:

$SO_2 \rightarrow S \rightarrow N \rightarrow$ Sewer
$B_2 \rightarrow B_1 \rightarrow C_2 \rightarrow C_1 \rightarrow$ Sewer

Local conditions may dictate other arrangements.

For Processes of three stages, there should be available 20,000 to 30,000 gals per ton pulp with exit from the chlorinated stock washer.

The last 15 years has been marked by a growing appreciation of the importance of quantity and quality of the water supply and by an increasing knowledge of the essential properties of such water.

Chlorine Handling, Control and Application

The industry, in cooperation with chlorine suppliers, has made outstanding progress, both in ways and means, for the handling of chlorine and for its measurement, its control and its application to the pulp for chlorination.

For batch chlorination the chlor-

BEAR BRAND CHEMICALS

Ready to Ship!

AMMONIA
CAUSTIC SODA
CHLORINE
SULPHUR DIOXIDE

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THE DOW CHEMICAL COMPANY
SAN FRANCISCO — CALIFORNIA
Seattle — Los Angeles

West Coast paper mills depend upon Bear Brand for essential chemicals of high quality and uniformity—and they are always readily available.

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DOW

CHEMICALS
INDISPENSABLE TO INDUSTRY

ine can be added in liquid form. Facilities are available for the accurate measurement of weighed batches are applied to pulp batches of known weight and known chlorine demand.

For continuous flow chlorination, the chlorine should be in gaseous form and at a uniform temperature and pressure if it is to be accurately controlled and readily metered. Pulp of known chlorine demand and flowing at a known rate can be correctly chlorinated by appropriate regulation of the rate of flow of the chlorine.

However, correct chlorination in continuous flow operation can be obtained without knowing the rate of pulp flow, the chlorine demand of the pulp or the rate of flow of the chlorine. This is how it is done:

The chlorine and pulp are rapidly and thoroughly mixed and allowed to react for a short but definite period—say 5 minutes. The residual active chlorine remaining at the end of that period should be constant. Uniform chlorination is obtained by adjusting the rate of chlorine flow to maintain the constant residual concentration. Correct chlorination is obtained by appropriate selection of the magnitude of the residual. If the residual is kept constant the chlorine demand of the chlorinated pulp will be, for all practical purposes, constant, a fact which facilitates the controls in subsequent stages of the bleaching process.

It is not difficult to maintain a constant residual. A simple titration for available chlorine made each 15 or 20 minutes on a sample of water squeezed from the chlorinated pulp serves as a guide to the operator for adjusting the chlorine flow. The color of the pulp is also a good indication of the correctness of the chlorination and permits an experienced operator to decrease the frequency of the chemical tests.

Metering Chlorine

Metering of the chlorine is essential if the "residual" method of control is not used. Some mills prefer to meter the chlorine even though the "residual" method is used.

Whether or not the chlorine is metered it is important to deliver to the control valve a gas of uniform temperature and pressure. Otherwise the rate of flow will not be constant for a given set of the control valve.

Making and Handling Bleach Liquor

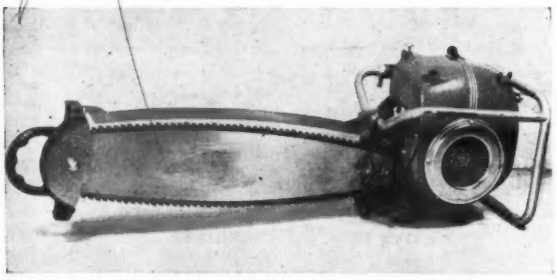
The making and handling of bleach liquor have been a part of the bleaching process as long as bleaching has been practiced. Even so the last 15 years have been marked by some notable improvements in that phase of the process.

One important advance has been the development of a procedure whereby the liquor can be made and used immediately without allowing it to settle. Among its advantages are: (1) bleaching making can be done in the bleachery by the bleach operator anytime around the clock, (2) no washing of sludges and hence no chlorine losses in incompletely washed sludges and (3) no need for large liquor storage capacity.

The procedure is not so unorthodox as it may at first appear. The lime milk, at ½ to ¾ lb/gal of CaO, is screened through a wire cloth (preferably Monel) of 170 meshes per inch. A very simple and inexpensive screen serves the purpose. The screened lime milk is diluted to the desired concentration and chlorinated in the usual way to the usual end point.

Particles which pass the screen but which are not dissolved in the chlorination are found to be harmless in the pulp even for high grade papers, e. g. bonds, writings, etc. In fact, most of such particles are washed out of the pulp anyway.

Lightweight Gas-Drive Power Saw Developed by Reed-Prentice



"Timberhog" — This is a 30-inch gasoline, powered chainsaw, one of a new model announced by Reed-Prentice Corp. This 2-man unit weighs 57 pounds.

Lightweight aluminum is finding interesting uses in the pulp and paper industry. Last month we published pictures and stories of a mechanical automatic pulpwood loader being used in the South and of a digester house in Oregon—both of that metal. Here is shown a lightweight but durable gas-driven power saw constructed with aluminum or magnesium castings.

Reed-Prentice Corp., Worcester 4, Mass., announces through its Timber Saw Division, this new gasoline-driven model of power-driven "Timberhog" chain saws; featuring a machine of 20-inch cutting capacity for one-man operation ($325) and 24 and 30-inch for two-man operation ($335 and $345).

This No. 1 model has a 4-hp. one-cylinder two-cycle air-cooled gasoline engine. Parts in all sizes are interchangeable. It is easily maneuvered in the woods, being built of lightweight aluminum or magnesium die castings (the 20-inch saw weighing 52 lbs.). The 24-inch and 30-inch saws weigh 54 and 57 lbs., respectively.

A positive fuel injection system enables the saw to operate at angles of 90 degrees or more without adjustment. A newly designed chain and guide bar permits accurate setting and locking of saw frame to provide proper tension of chain. Oil and gasoline tanks are built into the engine shroud, for greater protection and streamlining. An automatic centrifugal clutch allows engine to idle in event of binding and makes for greater safety when not in operation.

Bradner, Head of Missoula Station, Dies

Melvin I. Bradner, director of the Northern Rocky Mountain Forest and Range Experiment Station died at his home at Missoula, Mont., July 3. A leg injury suffered in combat in World War I contributed to infirmities leading to his death.

H. T. Gisborne is acting director.

Mr. Bradner was born at Powers, Mich., in 1895. He received a forestry degree from the University of Michigan in 1916. He worked at the Wenatchee National Forest in Washington, the Coeur d'Alene National Forest in Idaho, and in 1923, was transferred to Missoula to the office of forest products, first as assistant, and later in charge. When the office was transferred to the Northern Rocky Mountain Forest and Range Experiment Station in 1931, Mr. Bradner continued in charge of the activity and also assumed the leadership of the forest survey in the Inland Empire and western Montana.

Tebbe Named To Missoula Post

Appointment of Charles L. Tebbe to be director of the Northern Rocky Mountain Forest and Range Experiment Station, at Missoula, Mont., was announced on July 26. He will assume his new duties Sept. 1. Since 1943, Mr. Tebbe has been assistant regional forester in charge of the Forest Service Division of State and Private Forestry at Portland, Ore. He was born and educated in California.

st IN ENGINEERING FOR PULP PRODUCTION

SWENSON *first* adapted Long Tube Vertical Evaporators to black liquor.
SWENSON *first* developed the annular steam baffle.
SWENSON *first* used the liquor deflector.
SWENSON *first* developed a double body first effect.
SWENSON was *first* to feed the last two bodies in parallel.
SWENSON was *first* to design and use internal catch-alls.
SWENSON was *first* with a practical design for a successive multi-stage condensate flash system.
SWENSON was *first* with a practical design for a thick liquor flash system.
SWENSON was *first* with 5-body quintuple effect evaporation.
SWENSON was *first* with 6-body quintuple effect evaporation.
SWENSON was *first* with sextuple effect evaporation.
SWENSON was *first* with septuple effect evaporation.
SWENSON was *first* with the 2-pass heating element.
SWENSON was *first* with chromium plated tubes in heating elements and surface condensers.
SWENSON *first* employed longer and longer tubes.
SWENSON was *first* to recommend the use of the sodium bisulfate method of removing calcium aluminum silicate scale.
SWENSON was *first* to suggest the use of the white liquor method of removing fouling from the vapor side of the tubes.
SWENSON *first* provided for circulating white liquor for cleaning.
SWENSON is the *first* and *only* evaporator manufacturer to publish technical information for the benefit of the pulp mill industry.

This remarkable record of achievement demonstrates how Swenson customers have been first to enjoy the benefits of successive engineering advances in equipment for black liquor evaporation.

Many Swenson developments in evaporation and filtration are so widely accepted in the pulp and paper industry that frequent attempts are made to imitate them. Very seldom, however, have these imitations succeeded in rivalling the operating efficiency and economy of the Swenson-engineered originals.

Swenson is still pioneering. The ultimate in process development has not yet been achieved. It probably never will be. But you can secure the benefits of the latest research and technological progress by making Swenson your source of equipment. Swenson has supplied well over 60% of all the black liquor evaporation capacity sold during the last two years.

SWENSON

SWENSON EVAPORATOR COMPANY

Division of Whiting Corporation
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Export Dept., 30 Church Street
New York 7, New York

Inland Empire Steps Up Paper Machine Drives

A betterment program at Inland Empire Paper Co., Millwood, Wash., which has been in the offing for several years is now reaching stages of final fulfillment.

Principal move has been a gradual change over from the chain drive arrangement of earlier years to direct motor drives which will permit a 50% increase in horsepower per machine. Latest installations of motors to increase horse power were accomplished on a Valley Iron Works beater, with a second motor now enroute, and a 400-hp. motor for the spare jordan on the No. 2 paper machine.

A major overhaul of sulfite pulp screens, placed in 1936, has included replacement of old screen plates with 9 sets (14 per set) of chrome plated screen plates. Renewal has included relining of the No. 1 digester with acid resisting brick, relining of one leg of the Jenssen acid tower with acid resisting tile, and relining of the ash tower in the boiler house.

Pump placement includes a stainless steel pump as a sulfite filling acid pump; a new ground wood bull pit pump; and a Fairbanks-Morse vertical turbine underwriters pump to replace steam pumps on the 8-inch main line, to secure 100% assurance on the sprinkler system. This will deliver, 1,000 gallons per minute, with an identical delivery on the standby steam pump.

On order for delivery in the near future are a new Cameron winder for No. 4 machine, and two Norton pulpstones.

Plans call for near future installation of two exhaust fans for the No. 3 machine hoods, and early placement of new Transite hoods on both the No. 3 and No. 4 machines.

Work is now progressing on a change over from wood to concrete flooring on the 53 x 108 storage collection room, the 12 x 254-foot railroad loading dock, and a larger store room taking off from the opposite end of the dock. This move was necessary to expedite handling of rolls with lift trucks. What trucks will be purchased will depend largely on what can be supplied when floor and dock work is completed on Sept. 1.

Because of the local fuel situation two Wickes vertical water tube boilers have been converted from hog fuel to oil. This has diversified boiler fuel three ways as follows: two oil burners; two hog fuel burners; one coal burner.

CHESTER A. BUCKLAND, General Manager at Inland Empire Paper Mills, says new equipment will ease performance and increase efficiency.

Likewise, sprinkler heads in the machine room, and in other places, because of their age, have been replaced by way of added insurance.

General Manager C. A. Buckland, General Superintendent Jerome L. Janecek, and Production Manager Myron W. Black were agreed that the program will ease performance and add efficiency to the mill functions.

Jacobsen Returns From OSS and UNO Experiences

Henry B. Jacobsen, who served as liaison officer for the Office of Strategic Services behind the Russian lines in Europe during the war and was an interpreter more recently at the United Nations conference at Hunter College, New York, is back at his old job in the technical control department of the Crown Zellerbach mill in Camas, Wash.

Mr. Jacobsen, who speaks four languages, was loaned by the army to the state department for the UNO meeting, and worked mostly with Russian and French delegates.

Bellingham Picnic

The laboratory, office and supervisory staff of the Puget Sound Pulp and Timber Co., Bellingham, Wash., held a picnic on July 24 at the summer home on the sound of one of the laboratory technicians, Miss Luella Warriner. Assisting in arrangements were John Purvis, shipping clerk, and Sidney Collier, assistant superintendent.

Figures On Canadian Western Log Exports

Export of hemlock logs from British Columbia, most of them used for pulp, by U. S. mills on Puget Sound, totalled 28,769,826 bd. ft. in 1945, and of balsam 3,854,344 feet, for a total of the two species amounting to 32,624,170 feet (equivalent to about 65,000 cords).

This compares with 32,027,805 feet in 1944; 29,261,754 in 1943 and more than 100,000,000 feet in 1942 before wartime restrictions were imposed by Canada's Timber Control.

The ten-year average for export of this type of logs is 89,598,420, but unless government policy changes it is unlikely that annual exports in future will approach that figure owing to continued limitation of available raw material for British Columbia pulp and paper mills.

Kalamazoo Officers

R. T. Mashburn, chief chemist of Paper Makers Chemical Division, Hercules Powder Co., is the new chairman for 1946-1947 of the TAPPI Kalazamoo Valley Section. Lee Mimms, Kalamazoo Paper Co. superintendent, is vice chairman; P. W. Bartholomew, technical director, Hawthorne Paper Co. is secretary, and Myron Floto, Allied Paper Mills superintendent, is treasurer.

Brompton Looks West

Commenting on recent operations of Brompton Pulp & Paper Co., President Arthur White recently stated that scarcity of pulpwood near Bromptonville, Que., was largely responsible for the company's decision to expand operations at Red Rock, Ont. Price increases and improvement in operations at Red Rock resulted in substantial increased earnings in April, after a three months' slump.

DONALD N. PEDERSON, whose appointment as Chief Accountant and Office Manager of the Empire, Ore., mill of Coos Bay Pulp Corp., is announced by C. Wylie Smith, Vice President and General Manager.
Mr. Pederson, Univ. of Washington graduate of 1940, spent four years in the army, most of the time ordnance tire pricing assignment in Akron, O., and was discharged when a Captain.

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BLEACHED AND UNBLEACHED
CHEMICAL AND MECHANICAL WOOD PULP

Babe, Paul Bunyan's Blue Ox, was in a hurry to get to work every morning. He would drag Hels Helson along so fast that the Big Swede touched the ground only every mile or so.

A reproduction of this incident from the fabulous life of Paul Bunyan—the ninth of a series—will be sent on request. It will contain no advertising.

PLANT PRODUCTION RECORDS

Their Value, Significance and Extent Generally, And Also, in the Sulfite Industry

By Harold W. Bialkowsky

Technical Director,
Pulp Division,
Weyerhaeuser Timber Co.,
Everett, Wash.

The author—Harold Bialkowsky, who is also a member of TAPPI's National Sulfite Pulping Committee.

The entire progress of civilization is based on man's ability to record events and conditions.

Experience will always be the great teacher and man's ability to record the events and the exact conditions pertaining to the events, is the forerunner of all progress. The process of recording facts can be greatly simplified if the conditions, factors and results can be measured and expressed numerically.

As Lord Kelvin so ably stated, "I often say that when you can measure what you are speaking about, and express it in numbers you know something about it, but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind."

This does not necessarily imply that our measurements and resulting data should be directly related to fundamental factors. As a matter of fact, most of the measurements and data on our industrial operations pertain to secondary manifestations of the fundamental factors. In many cases, our knowledge of the fundamental conditions and mechanism of a process is so meager that arbitrary standards, tests and methods are established, which are designed to fix and control the process in an empirical manner. Likewise most of the standards and tests applied to our products are of an empirical nature because our knowledge of the nature of the product has not been completely developed.

Our knowledge of the mechanism of the processes and the nature of the products is in a constant state of evolution and the rate of development of our knowledge will depend upon our ability to devise new techniques and measurements, and to record and analyze our observations. Study of the records and data invariably leads to further reasonably sound speculation on the nature of the processes and products which in turn leads to improvements in our operations.

In this discussion the term "records" will include not only the figures and data recorded, but also the means of measuring and obtaining the actual records.

Practically all business operations today, maintain fairly elaborate manufacturing records for cost accounting purposes. From a theoretical viewpoint, the records maintained for cost accounting purposes should be precise and representative of actual operating conditions. In many cases, however, cost figures are obtained by estimate allocating and proportioning of the overall material, labor, energy and expense. Estimated figures and records often lead to erroneous conclusions when we attempt to analyze our operations in a scientific manner. Many of the factors, which we are trying to bring to light, are very subtle, and rather precise measurements are necessary to evaluate their causes and effects. Operating figures and records should be refined to a point where the precision obtained is balanced by the expense of the refinement. Many of the figures necessary for cost purposes are the same as, or can be derived from the basic operating records. Cost figures comprise only a part of the desired data for scientific plant operation and as the cost breakdown becomes more detailed, more of the basic operating data can be brought into use. In general, the operating figures and records which are of interest to cost finding are those related to the overall material, energy and labor balances, whereas from a technical or scientific aspect, the operating figures should also include measurements on the manner and conditions of the operation, and data on the quality changes in our processing materials and products. Precise operating figures and records should be developed to a form where they are not merely luxury items of scientific interest, but where they are the sound basis for cost accounting and proper quality control.

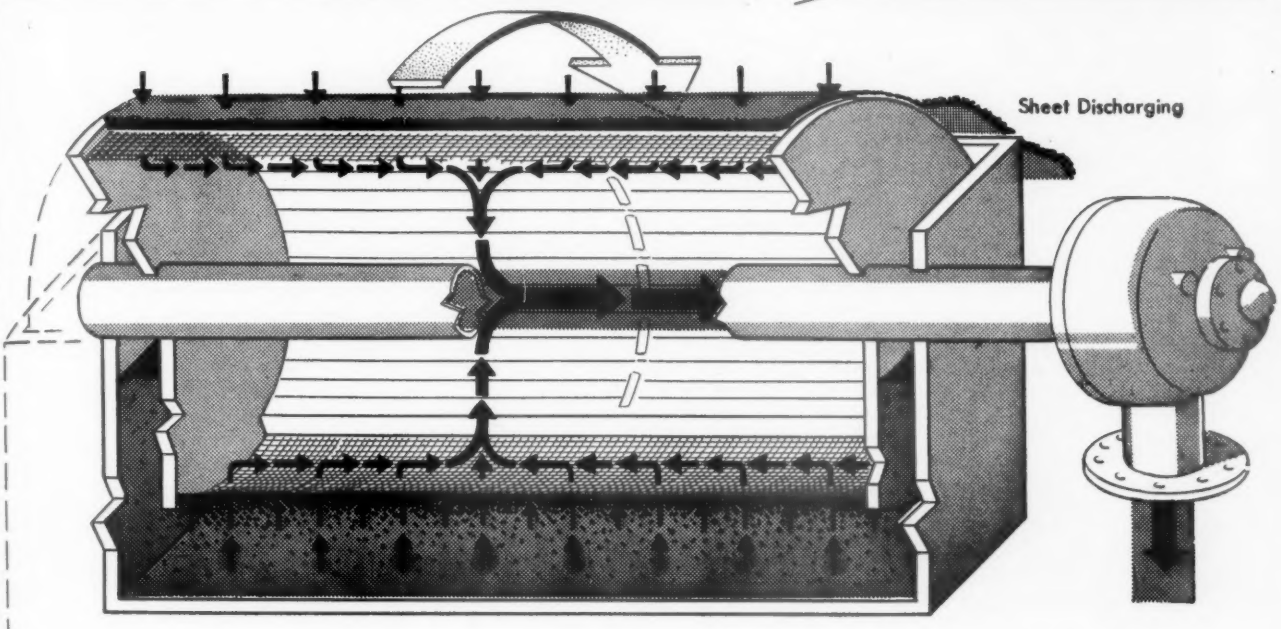
During the past two decades, great strides have been made in the technical development of our operations and the quality improvement of our products. Laboratories and technical control departments have been established in most of our plants for the purpose of maintaining uniformity of the quality of our products and the material during the course of manufacturing. Gradually also, the technician has introduced recording and controlling instruments and other devices for the purpose of maintaining the desired quality.

In most of the older plants, conditions and facilities were not available for strict control of the operating variables and development work was left entirely to the research department with the pilot plant facilities.

The major premise in all research work lies in the ability to duplicate conditions with a very rigid control of all the operating variables. If, however, a plant is equipped with the necessary facilities for measuring and controlling all or most of the pertinent variables, the plant itself can become a large scale pilot plant operation and much more valuable information can be derived from the commercial experiments than from the tests made in miniature. Research and pilot-scale experiments are necessary where entirely new techniques are under consideration, or where it is not feasible to alter the commercial operation to fit the conditions of the experiment. Aside from purely academic questions, if the results of the pilot plant or small scale work are to be realized, they must eventually be translated into commercial

OLIVER SAVEALL

. . . STOPS FIBER LOSSES MECHANICALLY



This is a point sometimes overlooked and it's a point worth discussing.

Being a mechanical operation—a simple, physical separation of fiber from white water—Oliver Saveall operation requires no skilled technical supervision to make it successful. No delicate chemical adjustments are needed. Actually the Saveall functions as an efficient filter, continuously interposing a sheet of pulp to stop the fibers from flowing away. The fibers are continuously discharged with the pulp to the machine circuit.

Since its introduction to the paper field over 20 years ago, the Oliver Saveall has fulfilled its high expectations. Several hundred already have been installed. Progress in design and construction has been made, of course, notably in methods for discharging the sheet. Today, Oliver offers either rubber covered or durable redwood tank and drum construction plus a selection of three dischargers: Hydrair, Oliver Denhard, and Discharge Roll—the choice being determined by the kind of fiber handled and the sheet formed. With such a selection, the Oliver Saveall is adaptable to any kind of stock. It is described in Folder F-109.

Today's problem of white water control is both economic and sanitary. That's why you need the simplest and most effective unit you can find. Why not have an Oliver United Engineer recommend the type and size of Oliver Vacuum Saveall for your mill?

OLIVER PULP FILTERS

OLIVER Ringvalve Sulphate Washer

OLIVER Ringvalve Sulphite Washer

OLIVER Ringvalve Soda Washer

OLIVER Ringvalve High Density Thickener

OLIVER Ringvalve Bleach Washer

OLIVER Ringvalve Decker

OLIVER Saveall

OLIVER High Density Thickener

OLIVER Pulp Washer

OLIVER Groundwood Decker

OLIVER Groundwood Washer

OLIVER Lime Mud Filter

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of full scale operation, and if corresponding results are to be realized in commercial practice as were indicated by the preliminary research, it is imperative that the same care and control be exercised in both cases. Under present day operation where we are striving for a maximum degree of quality control with a minimum waste in raw materials, it is essential to provide all of the necessary control and measuring devices within reason in order to obtain the desired results.

In our sulfite pulp industry, as in any other modern industry, there are a number of distinct lines of approach in obtaining operating figures. For many of the variables which we are trying to measure and control there have been developed standard instruments for the specific purposes, such as temperature, pressure, liquid level, flow and other recording and controlling instruments. Many of the factors have to be controlled by manual testing and measuring while the process is in operation either because automatic equipment has not yet been devised or because the automatic features would be too cumbersome and impractical. Some factors which do not vary too widely or which can only be evaluated by lengthy testing methods, are measured and analyzed quite some time after the processing has been completed.

Automatic recording and controlling instruments play a predominant role in all of our operations. The details of instrumentation can be found in the various manufacturers' catalogues and in text books on automatic control. Testing techniques and procedures have been devised by the individual mills and standard methods have been and are constantly being developed by TAPPI and other groups, the details of which are known or are readily available to all of you.

In all of our training in the physical sciences, we were constantly taught to maintain neat and complete notebooks, and to prepare lucid and comprehensive reports on our experiments and observations. If we attempt to operate our plants in a true technical and scientific manner we should also maintain clear and readily available records of the operating conditions and of the results accomplished.

We often spend a great deal of time, effort and money, to obtain certain information and the results are often left to the memory, or the findings are recorded in isolated and haphazard notes. In the broader sense, the maintenance of clear and concise records is of just as vital importance as the making of the measurement or observation.

A TIMELY AND IMPORTANT SUBJECT

This paper was given by Mr. Bialkowsky at National Convention of TAPPI, New York City, in late February of this year.

At present the industry is striving, as never before, for higher quality of product and also for less waste of materials, labor and energy.

For these reasons, Mr. Bialkowsky has written a paper of particular interest today—not only to the sulfite branch of this industry but to all its other branches.

He discusses particularly the present day value of comprehensive records in the wood preparation department. He notes the overall effects of Weyerhaeuser's revolutionary move in changing over from mechanical to hydraulic log barking and to whole log chipping, as shown by the records.

An ideal plant, it may be assumed from Mr. Bialkowsky's discussion, would have all pertinent variables under rigid control, and properly measured, with a clear and comprehensive record of all factors and final results. This record would be in constantly useable form, up-to-the-minute and would simplify greatly the work of supervisors.

Then you would have a plant conducted in a manner similar to a rigidly controlled scientific experiment.

By the way—there are interesting bits of philosophy as well as technical information in this paper, which reflect the lessons Mr. Bialkowsky learned in his active career in the Wisconsin and Washington state industries.

Modern Mill Records

In an operation of the size and scope of a modern pulp plant, the processing can be broken down into a number of steps or departments, which often have their own foremen or supervisors. The foreman often maintains notes and records on his own department. However, since most of our operations involve a series of treatments, variables in one department often have effects on subsequent processing. Harmony and smoothness of the overall operation was left to the plant superintendent, and the successful operation of the plant depended on his skill in juggling all of the variables.

With the technical development of our industry, the number of variables and points of control is steadily increasing; and in order to simplify the work of the superintendent and foremen, up to the minute operating data should be available to them as well as records of the past operation. This relieves the supervisor of a great deal of unnecessary detail and permits him to direct his efforts to the conditions at hand.

There are numerous ways of maintaining operating records. In the Pulp Division, the daily operating figures are recorded in work books and most of the pertinent data are posted on large graphical charts. We maintain a group of specially trained clerks for collecting and developing the records and constantly keeping the daily graphical records up to date. A complete description of the chart room methods and techniques was given by A. S. Gerry (PULP AND PAPER INDUSTRY, July, 1944, issue).

A complete description of all the instruments and techniques used in obtaining records is beyond the scope of this paper. Moreover, each mill has its own individual and particular problems, and factors that are of vital importance in one plant, may be only of secondary importance in another. In addition, instruments and methods are constantly being improved and often we cannot discard our present equipment for the newer and more versatile models. It may be well to point out and discuss some of the instruments and techniques used in the various operations, although this discussion must necessarily be brief and sketchy.

In order to confine ourselves to specific installations, the following considerations pertain to the operations of the Pulp Division, particularly the Everett Mill. In each instance it is not the intention to claim that it is the only or best way to do a certain job, but simply to point out a way which has proven satisfactory considering all the factors involved.

Wood Preparation Data

In the wood preparation department, weightometers play a very important role. Wood is our major raw material and daily operating figures and records of the chip yields and wastes are of vital importance.

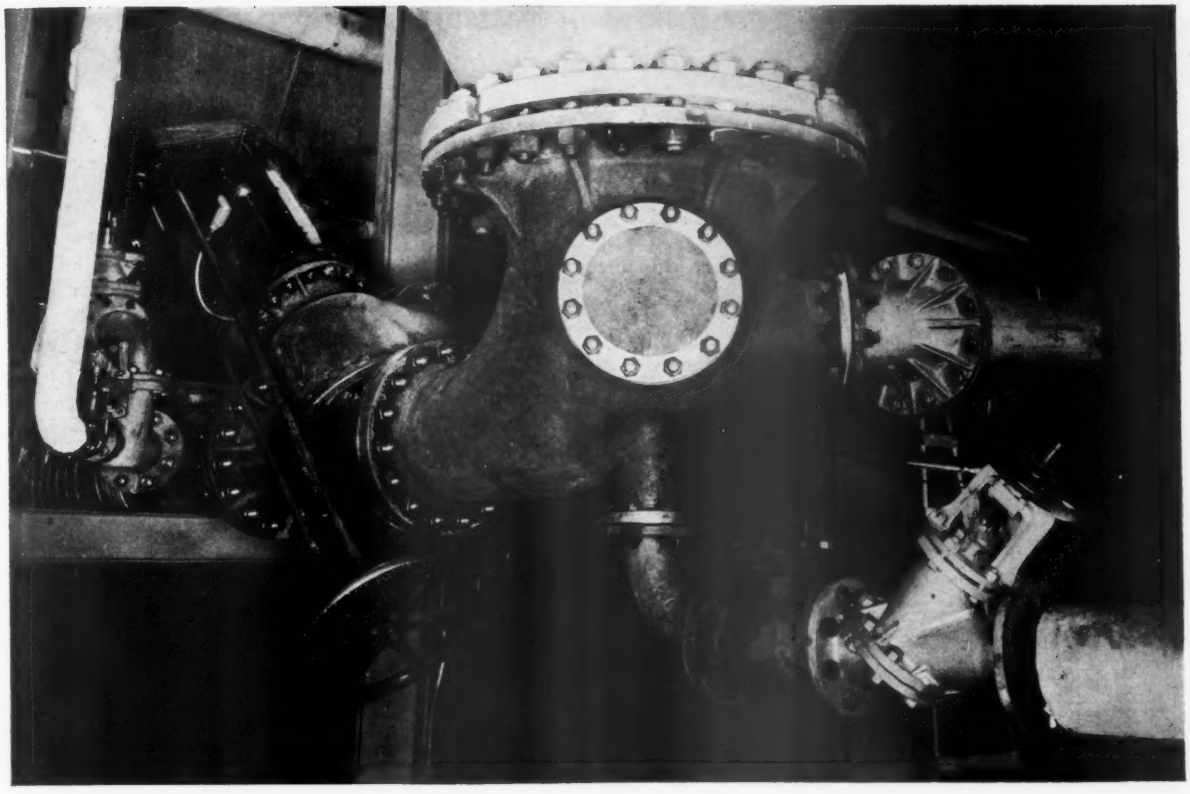
At Everett, the hydraulic log barker and whole log chipper are operated on the day shift, while the hydraulic slab barker and the small chippers are operated on the evening shift, which in some cases permits the use of the same equipment for measuring the chips and the waste in each type of operation.

Weightometer measurements are obtained on the chips from the big barker, chips from the small wood, bark waste and wood waste. The weightometer readings indicate only the material passed over the belts, and in order to obtain the fundamental air-dry or bone-dry weights its is also necessary to maintain automatic or manual sampling stations and to provide for daily testing of the manual sampling stations and to provide for daily testing of the moisture content of the various components.

The moisture tests are made by the shift chemists using the proper weighing scales and a specially designed oven, with forced circulation and automatic temperature control. The screened chips are also sampled and tested daily in the laboratory for quality factors.

Records are maintained by the operating foremen on the more obvious factors such as operating hours, number of men, number and kind of logs, etc. As an example of the daily graphical records in a typical department, we list the items on our wood preparation board or chart:

White Fir log scale.
Hemlock log scale.
Total log scale.
Air-Dry tons White Fir chips produced.
A.D. tons Hemlock chips produced.
Total A.D. tons chips produced.
Ft. of logs per A.D. tons of chips.
Ft. of logs per A.D. ton of slush pulp.
Average ft. per log.
Percentage of outside logs.
Total logs cut per day.
No. of logs thru band mill.



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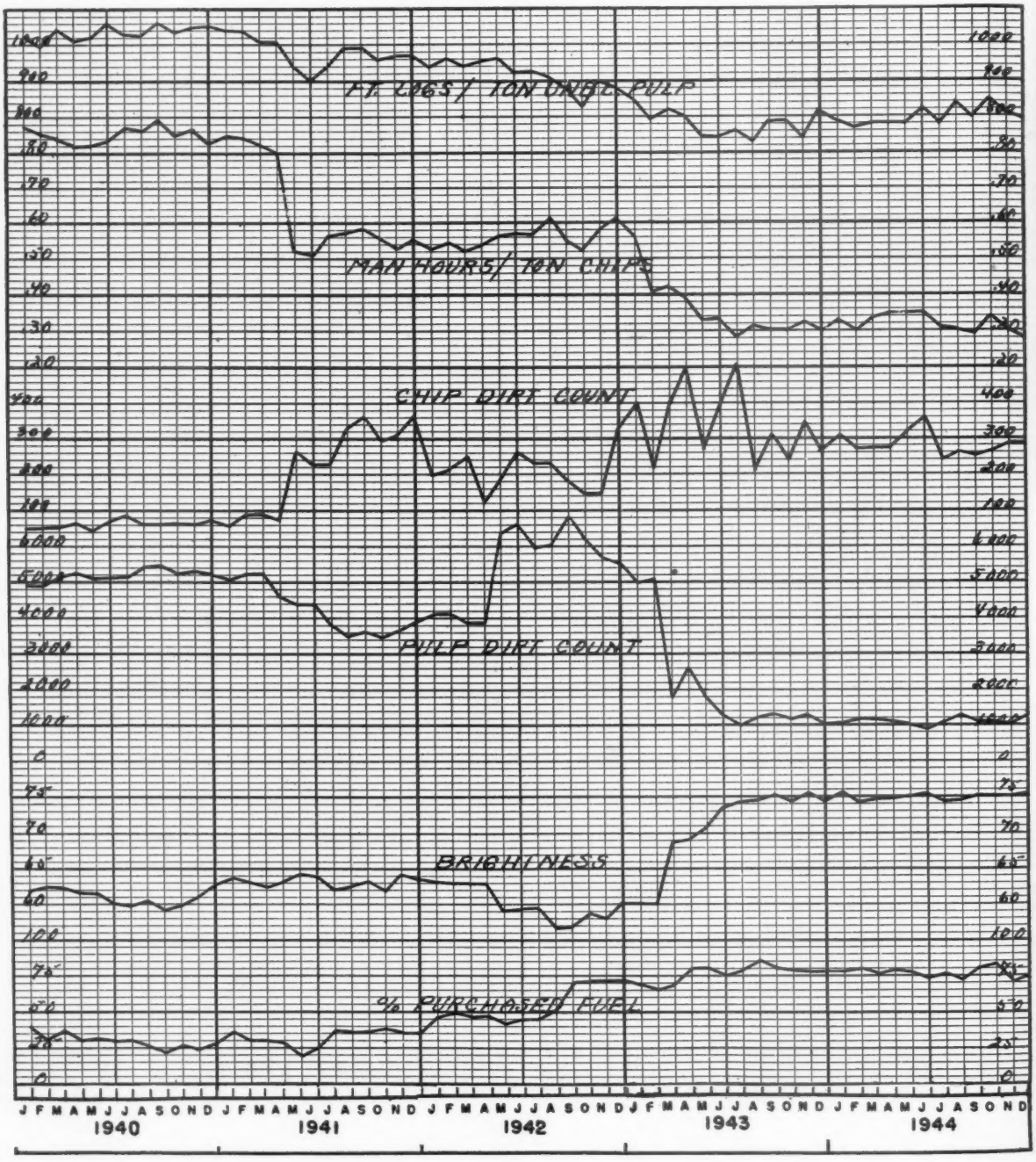
DATA ASSEMBLED FROM THREE DIFFERENT CHART ROOM BOARDS (1941 - 1944 INC.)

Wood Preparation — Pulp Quality — Power House
(at Everett Mill, Pulp Div., Weyerhaeuser Timber Co.)


FT. LOGS / TON UNBL. PULP
MAN HOURS / TON CHIPS
CHIP DIRT COUNT
PULP DIRT COUNT
BRIGHTNESS
% PURCHASED FUEL
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
1940
1941
1942
1943
1944

This shows—from top to bottom—decline in ft. of logs to ton of unbleached pulp; decline of man hrs. to ton of chips; fluctuations in chip dirt count; decline in pulp dirt count; rise in brightness of pulp and rise in percentage of purchased fuel. See the accompanying article for dates of operation of new chemical cleaning and hydraulic log barking plants, and also of wartime restrictions and regulations, which caused these fluctuations.

argest producer of unbleached sulphite wood pulp in the U. S.

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ANNUAL CAPACITY 135,000 TONS

FIRST AND FINAL OPERATIONS IN PRODUCTION OF QUALITY WOOD PULP FOR DOMESTIC AND FOREIGN CONSUMERS

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Bellingham Washington

Cords—slab wood.
Cords—clear wood.
Percentage of chips from waste wood.
Percent moisture in barker waste.
Percent moisture in waste—weighted ave.
Total % waste from logs.
Percentage chip screen waste.
Percentage of barker waste.
Percent sawdust in chips.
Chip dirt count.
Average chip length.
Percent nearness standard length.
Percent rot in chips.
Percent White Fir chipped.
Net A.D. tons chips per hr.
Gross A.D. tons chips per hr.
Ave. operating hrs. per day.
Band mill hours.
Man hours per ton A.D. chips.

Bleach and Barking Plant Effects

During the past five years a number of major changes have been made in the Everett operations. A two-stage bleach plant was installed to take care of an anticipated increased wood dirt from the whole log hydraulic barker and chipper. The original intention was to produce an unbleached pulp grade of the same brightness as regular unbleached pulp but which had been treated with chlorine and hypochlorite to remove the dirt that could not be removed by the new wood preparation method.

In the accompanying chart we have assembled some data from three different chart room boards, namely; wood preparation, pulp quality and power house boards.

In May 1941, the bleach plant or chemical cleaning plant was put into operation and the knot borers were immediately eliminated. This resulted in a decided saving in wood and man-hours. The chip dirt count rose sharply, but the pulp dirt count declined indicating the effectiveness of chemical cleaning.

By the beginning of 1943, both the hydraulic barker and whole log chipper were in full operation, with the result that the wood consumption dropped from 1050 to 800 feet of logs per tons of pulp, the man-hours per ton of chips dropped from .85 to .32, and the chip-dirt count rose from 80 to 350.

From May 1941 to April 1942 we produced chemically treated pulp with a lower dirt count that the original type of unbleached pulp. From May 1942 until March 1943 we were unable to use chlorine due to war restrictions, although the pulp was given the regular mechanical treatment in the bleach plant, and the dirt count rose to around 6000. In April 1943 we began to produce the standard 74 brightness pulp.

The accompanying chart shows the percentage of our fuel purchased from the lumber division; the balance is from car wood waste. Before the hydraulic barker, chipper, and bleach plant were installed, we produced about 70% of our fuel and purchased 30%; we now produce about 20% of our fuel and purchase 80%; all of which more or less proves the point that we can't have our cake and eat it.

Digester Operations

The primary function of the acid plant is to provide acid of the proper strength and quantity for the subsequent cooking operation.

In the hot-acid system such as at Everett, both heat and chemicals are reclaimed or circulated in very substantial amounts, and the higher the acid concentration, the larger will be the circulating load of chemicals. With the hot-acid system involving the use of acid accumulators, the acid plant is intimately tied to the digester operation and the entire system must be analyzed as a unit. At Everett, the system consists of the normal Jenssen acid system plant, followed by a pressure accumulator and six digesters having a maximum operating pressure of 150 lbs.

In the digester operation, the vessels are filled with a definite quantity of chips by weighing the chips over a weightometer. The acid is then pumped into the digesters under pressure until the liquor just goes over the top vent and the pressure is brought up to 110 lbs. With a chip charge of 65.7 wet tons, the acid charge per digester amounts to 37,100 gallons. This corresponds to 4.14 lbs. of accumulator acid per lb. of A.D. wood. Under these conditions 2160 gallons of cooking acid are required per A.D. ton of slush pulp produced. During the first part of the cook, the digesters are relieving considerable wet relief and side relief to the high pressure accumulator, since the digesters are heated by direct steaming. During the latter part of the cook the digesters are relieving steam and gas to the high pressure header and during the blowdown the relief goes through the low pressure header to the low pressure accumulator. In circulating and reclaiming the heat and chemicals, there is also a substantial quantity of liquid carried back, especially to the high pressure accumulator. There is also some dilution of the acid in process due to the packing glands on the pumps at the various stages and in the digester circulation. Of the 2160 gallons of cooking acid per ton of slush pulp, 1170 gallons originates from the Jenssen towers and the balance is made up by digester relief, with some dilution due to gland leakage.

During the cooking or delignification reactions a rather definite quantity of chemical should be consumed depending upon the cooking conditions. Since we are dealing with a heteogeneous material in wood and since the reactions are not always carried to the same degree of delignification, the sulfur consumption does not follow an absolute stoichiometric proportion. However, the amount of the sulfur actually consumed in the cooking process is usually considered to be around 175 pounds sulfur per A.D. ton of pulp. This amounts to roughly 4.0% on an A.D. wood basis. It is also generally considered that the combined sulfur dioxide is that part of the chemical which is consumed during the pulping operation, although the combined can be varied over a fair range and the resulting pulp is stil quite satisfactory. The above mentioned 4.0% would give a "true combined sulfur dioxide" to wood ratio of 0.08 or a figure of 0.04 as the combined is normally reported.

During the blowdown operation the pressure is relieved on the digester to a point to insure good blow conditions. There is always some chemical remaining in the digester at the time of the blow and part of this is recovered during the blowing operation from the blow pit. However, some of the chemical is lost during the blow, and the amount of this material plus the amount consumed by the digestion reactions represents the overall sulphur consumption for the process.

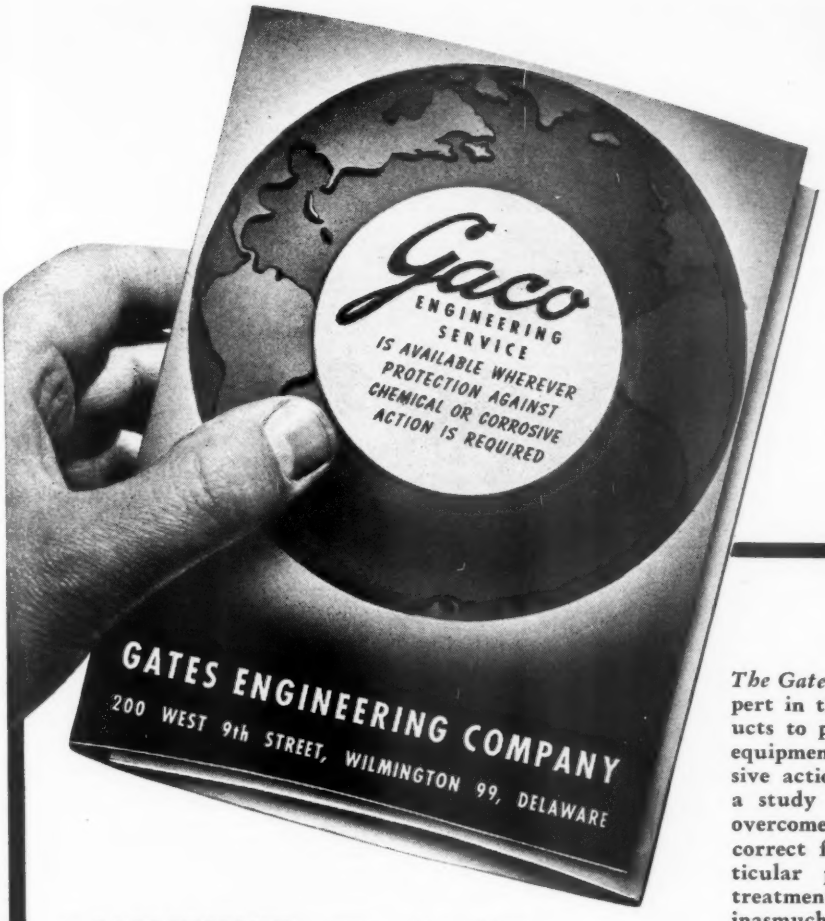
A corresponding amount of chemical must be furnished by the raw acid plant to compensate for this consumption. Moreover, this amount of chemical must be carried in a volume of solution which is equal to the difference between the volume of cooking acid and the volume of relief and incidental dilution. To secure the highest strength cooking acid for given conditions of temperature and pressure in the accumulators, the raw acid plant must supply the proper amount of acid with the concentration high enough to make the input quantity of chemical just slightly higher than the consumed chemical. The acid plant must literally cram sulfur dioxide into the storage and accumulator system continuously, so that when equilibrium conditions are attained, a slight surplus will be returning to the new acid plant in the form of overgas from the storage tanks.

The entire system operates practically on a continuous basis, although there are some fluctuations in the relief and gas flow at the various stages of the cooking cycle. This presents a problem of non-uniform and incomplete absorption of gas in the eductor and accumulator system, with the result that overgas is returning to the new acid plant even before equilibrium conditions are attained in the accumulators and storage. Aside from the volume of acid and the total quantity of sulfur dioxide carried, the new acid plant must supply the total quantity of sulfur dioxide in the proper proportion of combined and free.

With seasonal fluctuations in water temperature, a rather serious problem is presented in maintaining the correct proportion of combined and free. Lower temperatures favor the formation of the free component and counteract the solubility of the combined chemical, while just the opposite conditions are produced by warmer temperatures.

In a system of the above type, careful control must be exercised in maintaining the proper flow of chemical and liquid throughout the various stages of the system. Temperature and pressure controllers play a predominant role in maintaining the desirable equilibrium conditions. Flow meters are essential in maintaining the proper flow of acid at the various stages and liquid level gauges are used to check the flow rates and the quantities of acid in the various stages. The cooking cycle must be standardized, and the cooking speed and spacing must be integrated to the proper acid flow to and between the accumulators.

As already noted, a definite quantity of chips is furnished to the digester which gives a definite quantity of acid in the digester when pumped full under high pressure. The digesters are steamed according to definite schedule using a steam flow meter, although the fixed temperature curve is the main controlling factor. Under normal fixed conditions, the cooking time rarely varies more than 10 minutes from an average. The digesters and accumulators are equipped with liquid level recorders and also visual gauge glasses for checking. Flowmeters also record the circulation flow in the digesters. Chemical tests are made on the acid throughout all the various stages in the system. Transometer tests on the cooking acid assist in judging the progress of the cook, and bleachability tests after blow-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ing give a continuous check on gauging the course of subsequent cooks.

Effect On Overall Operation

Records are maintained on all of the variables which are considered to have even the slightest bearing on the overall operation. These figures are charted in the same manner as described earlier on the wood preparation department. With the charted figures it is easy to see and study the effects of changes in some variables on other factors and on the overall operation. In analyzing the mechanism of the operation it is often advisable to rearrange and recalculate the operating data in a different form. Thus instead of merely showing the chemical tests at the various stages of the process, we can recalculate the figures to show the chemical and liquid flow per unit of time or per unit of production.

In Table I there are listed the figures showing the chemical tests on the acid at the various stages of the process and these figures have also been recalculated to show the flow of chemical per unit of time.

In Table II, these same figures have been recalculated on a basis of unit pulp production.

TABLE II

	Acid per Ton Pulp Gals.	*No. SO_2 per Ton Pulp* F.	C.	T.
Jenssen	1228	315	215	530
Pressure	1282	369	215	584
Storage	1325	443	215	658
L.P. Accum.	1384	1082	215	1297
H.P. Accum.	2160	1715	232	1947

The above figures are average values and they indicate the necessity of maintaining the proper uniform flow of acid toward the digester stage and the equivalent counter current return flow of chemical from the digesters. The control of the combined sulfur dioxide of the cooking acid is primarily regulated back at the Jenssen system. However, this combined chemical is diluted in the course of the process from 2.10% to 1.29%. Continuous testing and recording enables the acid plant operator to regulate his initial combined chemical to give the standard cooking acid combined of 1.29%. Very slight changes in the cooking operation have an effect on this figure. Changing the time schedule of the side relief and the amount of the side relief have an effect on the cooking acid combined chemical. Chip packing or the digester charge effects the amount of cooking acid and also the amount of side relief both of which in turn will effect the combined concentration. These are but a few of the many factors, conditions and variables which must be observed and controlled, and the availability of complete and lucid records is of invaluable assistance in the proper manipulation of these operations.

Other Departments

The foregoing discussion is but a brief outline of the general practice and philosophy of making continuous measurements on the mechanism of our operations and the proper recording and preservation of knowledge. The wood preparation and the digester operations were used as a typical example of the general methods of securing and recording the operating data, and of the necessity of having complete records for the proper plant operation.

TABLE I

	Acid Tests F.	C.	T.	*Acid Flow* G/M	*Chemical Flow HSO_2/Min.* F.	C.	T.
Jenssen	3.08	2.10	5.18	236	60.6	41.4	102
Pressure	3.45	2.00	5.45	247	71.1	41.4	112.5
Storage	4.01	1.94	5.95	255	85.4	41.4	126.8
L.P. Accum.	9.39	1.86	11.25	266	208.5	41.4	250
H.P. Accum.	9.55	1.29	10.84	415	330	44.6	375

The same general methods and practices apply to the other departments of a modern plant, namely the power house, the screen rooms, the bleach plant, filter plant, and machine room and others.

Flowmeters, temperature and pressure recorders and controllers are used extensively in the power plant as well as electrical instruments.

In the screening operations, consistency controllers, liquid level recorders and controllers, and manual consistency testing play a predominant role.

Manual testing methods and chemical metering instruments are used extensively in the bleaching operations. At the Everett plant, automatic timing devices have been successfully used on the bleaching engines of the various stages to insure smooth operation and uniform treatment of stock.

Complete records are maintained for each department, and the graphical records give a convenient and yet very comprehensive picture of all the pertinent operating variables, and of the quality factors of the material in process and the final products.

Comprehensive operating records represent an accumulation of basic knowledge of our plant operation. If the measurements and data are collected in a true scientific manner, guesswork, and the whims and fancies of even the technical personnel are eliminated, and sound facts and figures become the basis of our operating methods and plant direction. The availability of up-to-the-minute data along with the knowledge of our past records relieves the supervisors of a considerable burden of routine effort and their time and energy can be directed to more creative purposes. We can apply the old maxim of "know thyself" to our industry and continue to observe and measure causes and effects, to record our observations and thus gain a fuller konwledge and understanding of our operations.

WILLIAM A. McCORMICK, new Purchasing Agent, Fernstrom Paper Mills, Pomona, Calif. He goes to the Pomona mill from Vernon (Calif.) Division of Fibreboard Products, Inc., where he served 19 years, 18 of them in purchasing department where he rose to Assistant Purchasing Agent.
Iowa born, McCormick steps into shoes of Henrik Vougt, who has been elevated to Vice Presidency of Fernstrom Pacific Corp., a separate organization engaged in importing newsprint for sale to publishers, printers and other users of news stock.

Louis Bloch On Visit To Vancouver, B. C.

Louis Bloch, chairman of Crown Zellerbach Corp., San Francisco, recently paid a visit to Vancouver, B. C., where he attended the annual meeting of Pacific Mills, Ltd., of which he is also board chairman.

Mr. Bloch conferred with President Paul Cooper and other officials of Pacific Mills regarding the survey now being carried out on the Nascall River, 30 miles from Ocean Falls, which is regarded as a potential source of additional waterpower.

Farewell Dinner For Louis A. Colton

A testimonial dinner honoring Louis A Colton, vice president and director, prior to his retirement, was held by the Zellerbach Paper Co. at the Concordia-Argonaut Club, San Francisco, last month, on the occasion of the company's 39th managers' convention.

Mr. Colton, whose retirement was effective Aug. 15, went to work for Zellerbach Paper Co. in 1898, at the age of 21, as a paper cutter. First outside salesman for the company, he became sales manager in San Francisco and later in Portland, Ore. In 1913 he was recalled to San Francisco to establish a division of purchases. In 1925 he was made a director and, in 1930, vice president.

Harold L. Zellerbach, president of the Zellerbach Paper Co., was toastmaster and he also presented service pins, the feature presentation being a 50-year pin to Charles Burgess of San Francisco. A 40-year pin was given A. F. (Bert) Neumann, general sales manager of the San Francisco division.

Catches 45-Pounder

Ken Kington, log buyer for Powell River Co. is high man for the year in the pulp and paper industry's unofficial salmon derby in British Columbia. During a recent trip to Phillips Arm he hooked and landed a 45-pound Tyee.

STANDARD ENGINEERS NOTEBOOK

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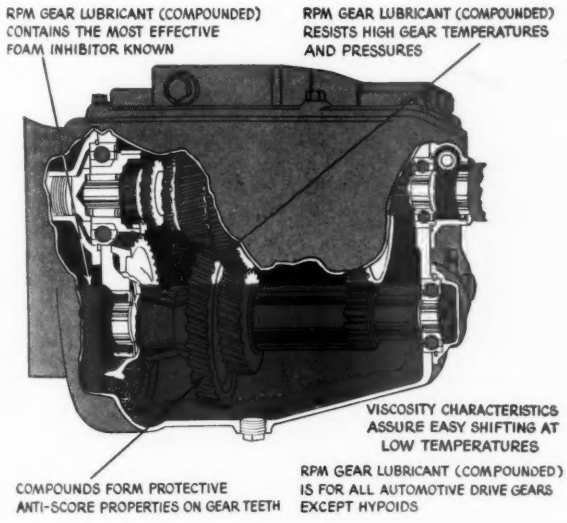
Many operators of automotive equipment have eliminated transmission and differential trouble by switching to RPM Gear Lubricant (Compounded). It is recommended for all transmissions and all conventional differentials. (RPM Hypoid Lubricant should be used in hypoid differentials.)

The compounds in RPM Gear Lubricant assure that a tough, oily film will remain on gears when pressure and heat become excessive. A highly effective foam inhibitor prevents retention of air in lubricant, poor distribution and "boiling up" to cause leaks.

RPM Gear Lubricant (Compounded) is non-corrosive. It comes in four grades: SAE 80, 90, 140, 250.

For complete information about automotive drive gears and their lubricants, write for the new, free booklet: "The Lubrication of Automotive Gears."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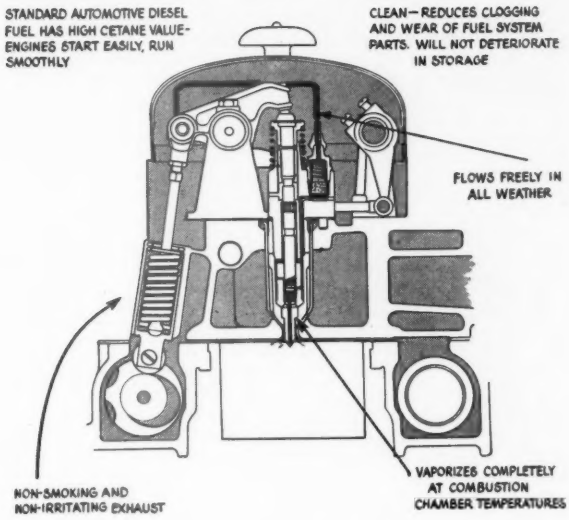
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Remarkable Returns From Re-Logging In Oregon Cutover Timberlands

In the Feb., 1946, issue of PULP & PAPER INDUSTRY (page 58) was published a paper by Clarence W. Richen, chief forester, Columbia River Tree Farms, Crown Zellerbach Corp., in which he discussed actual progress being made by several Pacific Coast operators in salvage re-logging of timberlands where small trees or broken trees were left on the cutover lands.

Mr. Richen, whose paper was presented at a Coast TAPPI meeting, discussed the "clean" logging and re-logging activities of Crown Zellerbach, among others, on two of its tree farms in Oregon.

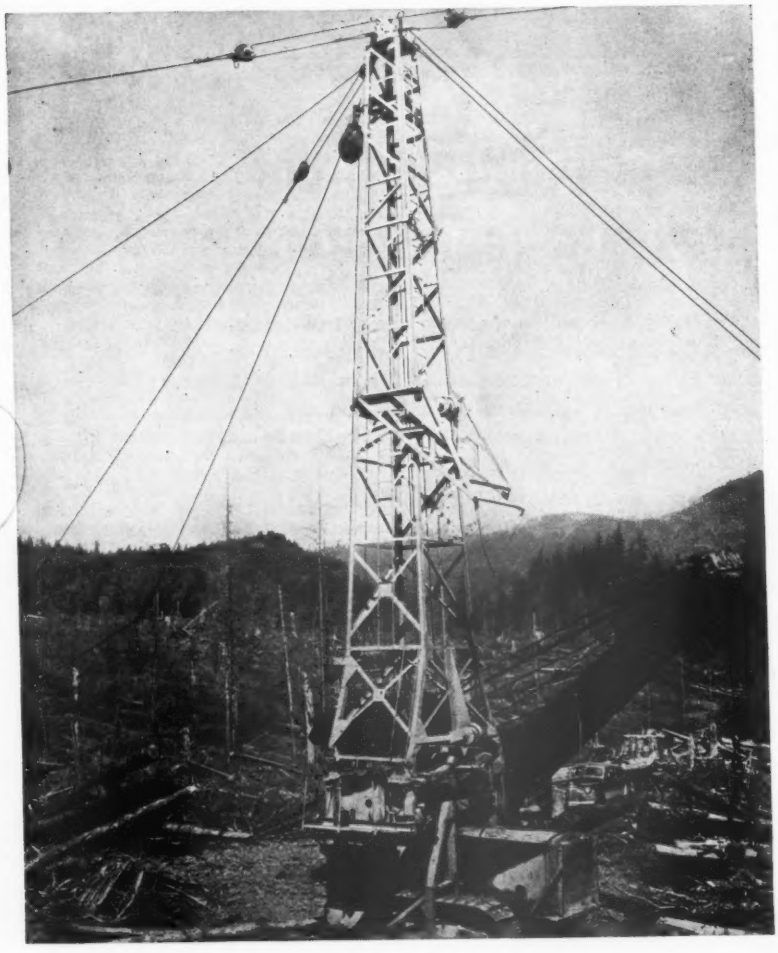
At the Pacific Logging Congress in Banff, Canada, Axel J. F. Brandstrom, former Crown Z chief forester, made a similar report which reviewed in more detail the essentials of Mr. Richen's discussion and carried it to a date about four months later.

Where Mr. Richen had only briefly described Crown Z's operations in Clackamas County and Clatsop County, Mr. Brandstrom not only brought to date these operations but also discussed a third by that company, in Columbia County (all in Oregon).

For instance, when Mr. Richen gave his paper, only 6,000,000 bd. ft. (12,000 cords) had been recovered in the Clackamas tree farm (50 miles southeast of Portland) in four months. Heavy snows, high water, storms, slides and machinery breakdowns had hindered the activities up to that date.

There was considerable speeding-up of these activities in the ensuing four months, so that when Mr. Brandstrom gave his talk, he had much more to talk about. For instance, in the Clackamas area alone, over 27,000,000 bd. ft. (54,000 cords) had been recovered.

Here follows, slightly condensed, the talk by Mr. Brandstrom, who, incidentally, now has hung out his own shingle as a consulting forester:



HERE'S ONE OF NEW LIGHTWEIGHT MOBILE yarding towers which have been developed especially to make re-logging in the Far West economically practicable. It follows heavier and costlier equipment into the stands after big timber is taken off.
This is a Hyster Co. (Portland, Ore.) tower mounted on Caterpillar tractor, equipped with five-drum hoist. It is in use at Crown Zellerbach's Johnson Creek operation near Seaside, Ore. The tower is 55 ft. high and is hinged so upper half can be lowered for better stability while moving from one landing to the next. It reaches 500 to 600 ft. and can be rigged for work in one to two hours.

By Axel J. F. Brandstrom

Last summer Crown-Zellerbach Corporation acquired what is now known as the Clackamas Tree Farm—a 45,000-acre tract which is located about 50 miles southeast of Portland, Oregon. Approximately 15,000 acres of this area consisted of clear cut lands which had been logged from 1939 to 1945. This area is now being re-logged and is yielding a salvage crop of rather surprising proportions.

There was nothing particularly unusual about these cut-over lands—nothing to set them apart from the ordinary run of heavy slashings such as you find in most clear-cut old-growth Douglas fir operations in the Oregon Cascades.

Production to date on this re-logging operation has climbed from less than one million bd. ft. in October to 6 million (about 12,000 cords) in May. The total to date, covering eight months of operation, is 27 million feet gross scale, and the total area covered is about 1,000 acres.

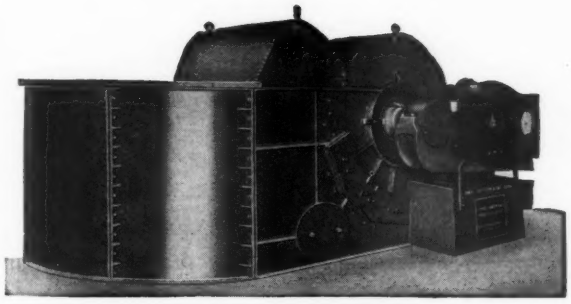
Plans to split up two green timber sides into two company-operated re-logging sides was expected to boost total salvage production to eight million feet or more per month. At this rate, salvage production for the second half of this year is likely to amount to forty to fifty million feet gross, or nearly twice as much as has been produced during the past eight months.

Re-logging on this operation is no longer in the conversational or laboratory stage. In the relatively short time of eight months, it has moved up from zero to really large-scale production. On this operation you can now see salvage logging in high gear, and if they keep it up at this pace, they will surely go places within the next two or three years or so.

Character of Salvage Material

What kind of material is coming out of this salvage operation? Your guess here might be that this is probably all

THE STANDARD BEATER OF THE PAPER INDUSTRY



UNIFORM FIBRE TREATMENT

SHORT BEATING CYCLE

AUTOMATIC CONTROL

LOW H.P. PER TON

The satisfactory results of the Jones-Bertrams Beater have been evidenced in mill after mill:

UNIFORM FIBRE TREATMENT — Practically 100 per cent circulation is accomplished, thereby producing uniformly refined fibres.

SHORT BEATING CYCLE — Roll and bedplate design results in producing a great amount of work in a very short time.

AUTOMATIC CONTROL — Duplication of beating cycles assured by automatic adjustment and control of roll setting.

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FLOOR SPACE SAVING — Replaces three, four, or more regular Hollanders.

In the event that you have not already investigated all the advantages of the Jones-Bertrams Beater, we will be pleased to give full particulars.

Jones

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Builders of Quality Machinery for Paper Mills.

RE-LOGGING IN OREGON *cutover lands for small and broken wood salvage. Here a tractor is used for yarding.*

small low-grade pulp material and culls, but that is not so. Diversity of this salvage material in species, sizes, and grades is surprisingly great.

Six different species are involved—Douglas fir, Western hemlock, Western red cedar, Noble fir, White pine, and White fir. Log sizes vary all the way from 6 to 44 inches and from 8 to 64 feet in length. Log grades, too, show quite a diversity. Scale sheets of the Columbia River Log Grading Bureau covering a 10-day test run thus shows 22 separate log grades and species, segregations of which nine represent saw mill logs. The rest are pulp logs. Less than 2% of the total volume represents cull-out logs of all species.

How Logging Is Done

Re-logging done so far on this operation has been by private contractors and at the present time there are nine contracting outfits at work. The smallest of these outfits employs only two men, the largest, 18 men, in both cases excluding the truck hauling. A total of 75 to 80 men are now working in the woods operations—representing an average of 8 to 9 men per contracting outfit. Production based on actual working days has varied for individual operations from 1 to 3 thousand feet gross scale per man day.

Practically all of this contract logging is being done with conventional logging equipment. On settings where the original yarding was done with high leads the re-logging is being done with high leads too—in some cases with small gas donkeys and others with tractor-driven units. On settings where the original logging was done with tractors (and most of the area involved was tractor logged), the re-logging is being done with "cats" too, but in all cases, with small or medium-sized "cats" ranging from the 30 to 75-h.p. class.

Only one of the contractors is using a really novel type of yarding rig. This is a home-made four-wheel-drive rubber-tired tractor, powered with a V-8 Ford engine, weighing about 3½ tons and capable of yarding loads up to about 1 thousand feet in volume. It was built from second-hand automobile and truck parts and cost its owner and inventor approximately $500. It has been nicknamed the "Doodlebug" by its owner, Willis Hinkle, but do not think for a moment that this funny looking contraption is not attracting quite a lot of serious attention from loggers who have had a chance to see it and watch it work. A well-built 4-wheel-drive rig of this type in the 5 to 10-ton weight class and with extra large traction type rubber tires may indeed have an important function to fill in the re-logging and small-timber operations which ar now rapidly coming into the picture in this region.

As to the loading operations, two of the nine contractors now at work are using shovel loaders, the others are using McLean booms or crotch lines with tongs—methods which are not too well adapted for the sorting and loading problem here involved. More shovel type loaders or other forms of portable loaders are needed in order to take some of the "kinks" out of this re-logging job.

As to trucking, one or two of the smallest contractors, I believe, are still using flat bed trucks, but others are using ordinary logging trucks with semi-trailers. The need for conventional semi-trailer trucks on this re-logging job is obvious in view of the fact that the logs range up to 64 feet in length. I am not so sure to what extent the contractors have begun to use side stakes yet, but based upon Crown's own experience in trucking small logs in Clatsop County, the need for side stakes to facilitate loading and to increase the load volumes in handling small logs is very obvious.

The average truck haul distance on this job is about 30 miles—all of it on private roads. Of this, 22 miles is over the so-called Molalla Forest Road—a splendid two-way main road which is owned jointly by Crown-Zellerbach Corp. and Weyerhaeuser Timber Co.

Make-Up of Asparagus Rafts

At my last visit, unloading at the log dump was still being done in conventional fashion for flat rafting, but at that time Crown had under construction a new unloading rig similar to the one they have been using for several months in Clatsop County. In this case the incoming truck load is stopped near the dump, and three or four loops of No. 3 or No. 4 guage wire (or flat steel bands) are quickly placed by hand around the load. The unloading rig then lifts the entire load off the truck in a cable sling and then lowers the load gently into the water where the wires are automatically tightened as the load flattens out of its own weight. The cable sling is then unfastened automatically and the bundle load drifts off on the tide or downstream and later becomes one of the component parts of a so-called asparagus raft. These are similar to flat rafts except that they are made up for the most part of bundled truck loads instead of individual logs. In this manner, Crown has overcome the sinker problem, which is otherwise a very serious problem in rafting small sap-heavy logs; and at the same time the capacity of the rafts has been increased to a very great extent. On the average, raft volumes are doubled—with resultant reduction of rafting and towing costs.

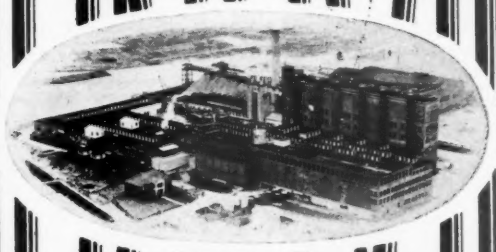
Scaling Methods Used

One very interesting feature of this Clackamas re-logging job is that no scaling is being done in the woods. Instead, all the salvage material is weighed. Each truck load is weighed on a truck scale which is installed on the Molalla Forest Road and a weight slip is given to the contractors for each truck load. Payments to the contractors for the falling, bucking, yarding, loading, and hauling are based solely on the tonnage produced at a fixed rate per ton. Both the contractors and the company find this practical and satisfactory. They like it. As a matter of fact, it is doubtful if any of these logging contractors would have been willing to tackle the re-logging of these old slashings on any other basis than weight. Had Crown talked board feet scale to them, the chances are that they would still be waiting for re-logging to get started. The weight basis obviously eliminates a lot of uncertainties and useless work—including guess work—and puts an end to bickering and burdensome record keeping. Then, too, it is by far a much fairer and more accurate measure of work performed than any form of log by log scaling. After the logs are in the water and have been sorted into saw logs and pulp logs, etc., they are scaled and graded which of course has to be done in the case of saw logs that are to be sold or traded to other parties. As far as pulp logs are concerned it would probably be better to retain the weight basis as a measure of log values, too.

Small Mill Salvage Operations

A recent development on this Clackamas re-logging job is the installation of a small portable sawmill, the principal purpose of which is to salvage charred logs from some of the slash-burned portions of the re-logging area. Charred logs

SOUNDVIEW



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are poison to pulp mills and in order to get the slash-burned areas cleaned up, small mills may prove a great help. This particular mill is owned by a small mill operator who pays for the timber salvaged at a fixed rate per thousand based on mill tally of the lumber sawn. A total of six men are employed in the milling and logging operation and production so far has averaged about 12 thousand feet mill tally per day. The product is mainly 2 and 4-inch cants. Average recovery to date has been only about 10 thousand feet per acre, which is considerably less than the volumes that are being recovered in the unburned areas. However, there is a total of about 6,000 acres of slash-burned areas so that in order to make any real headway several small mills are needed. Whether or not such operations will be profitable enough to attract more small mill operators still remains to be seen.

In this connection it may be of interest to note that Crown has another re-logging job under way, near Vernonia in Columbia County, where small mills are now beginning to make real headway. In this case there are 5,000 or 6,000 acres of recent cutovers—a part of Crown's recently acquired 40,000-acre Columbia Tree Farm—that are considered suitable for salvage. Practically all the salvage on this area is Douglas fir. Approximately 400 acres have now been re-logged, with an average recovery of 15 thousand feet per acre, or a total of 6 million feet. In these re-logging operations, the No. 2 or better saw logs, are being sorted out and sent to the Columbia River, while No. 3 sawmill logs and No. 1 wood-logs are going to small mills which have been installed recently. There are now four small mills operating in this area. One is a small tie mill operating with a 5-man crew, cutting 10 thousand feet per day. Another is a No. 2 Corley mill operated by 3 men and averaging 5 thousand feet per day. Finally, there are two No. 2 Corinth mills, both of which are operating with 8-man crews and producing about 15,000 feet or more per day.

Portable High Lead Yarder

From Vernonia we shall now move on to the Clatsop County operations where re-logging is being done too. In a sense, re-logging in this area started nearly two years ago, but because of lack of suitable equipment and man-power, it took the form of clean logging instead of re-logging. In other words, the purposes of re-logging insofar as current cutting areas were concerned, was accomplished as well as it could be, through close utilization. Almost everything with wood in it was picked up down to 6-inch tops and 12-foot lengths. At least so we thought. However, a re-check of these cut-overs showed that despite the very fine work done, an average of about 8 cords per acre of salvagable woods 6 inches and up in diameter, still remain on the ground, demonstrating that to do a real utilization job, re-logging with small crews and light rigging and equipment are essential.

A more recent development in these Clatsop County operations is re-logging of older slashings and blowdowns as well as initial logging of small timber shows with a specially designed steel tower mounted on a D-8 tractor. The tower is 55 feet high and is hinged so that the upper half can be lowered for better stability in moving from one landing to the next. This rig can be moved and rigged up ready for work in one to two hours. It can be operated not only off truck roads, but also off cat roads. It is now being operated with a crew of 6 men and is doing good work, reaching off to an average maximum of 500 to 600 feet. It was designed and built by the Hyster Co. of Portland, Ore.

GEORGE L. DRAKE, Vice Pres. and Logging Mgr. of Simpson Logging Co., which is entering pulpboard field: "The Pacific Coast industries are just beginning to realize the value of their younger stands of timber."

To summarize then, re-logging has now a pretty good start in Oregon and Washington and is likely to expand. Right at the present the main strength in this movement is coming from the pulp mills, and this may be further strengthened, of course, through construction of new sulfite mills or fiber board mills (such as the one now projected by Simpson Logging Co.)—pulping processes which are in a position to make most material of all species. Further support of the movement is apparently beginning to come from the sawmill industry too. and in this respect small portable mills of good design appear to hold much promise.

Forestry Aspects

From a broad forestry viewpoint, the potentialities of this re-logging development are tremendous. Region-wide re-logging of the intensity here discussed would probably mean a step up of the allowable cut of this region by 2 billion feet per year. What that would mean to the stability and well-being of this industry and dependent communities can readily be understood.

Re-logging would go a long ways toward reduction of fire hazards and improved stocking of re-foresting lands. In other words, re-logging would not only increase the immediate harvest from our forests, but it will also increase future harvests.

Machinery Needs

Machinery manufacturers and designers. They, indeed, have an important function to perform in this movement toward better utilization and better forestry.

Mobile loaders of proper type and size are among the most pressing needs for promotion of re-logging throughout this region.

I hope tractors of the future will include rugged, but cheaply operated, rubber-tired tractors with all-wheel drives and ample tire size; or rubber-tired arches or sulkies; and also that it will include tractors and attachments of the right size and type for the various re-logging jobs that are confronting this industry. I wish, too, that the program might have included some other new developments such as conveyor loaders for 8-foot logs, bundling devices for truck, rail, and water transport, and many other mechanical devices that are now on the horizon in this industry.

Free Seedlings in South

From 1941 to 1945; Southern mills distributing free seedlings included: International Paper Co., 6,100,000; Container Corp. of America, 4,000,000; Union Bag & Paper Corp., 3,600,000; Masonite Corp., 3,500,000; The Champion Paper & Fibre Co., 1,000,000; Gaylord Container Corp., 250,000; Brunswick Pulp & Paper Co., 225,000; Florida Pulp & Paper Co., 215,000; Felker & Koontz, 100,000; Southland Paper Mills, Inc., 10,000.

Due to seed shortage and other factors, as well as increased interest in plantings, Southern nurseries, in all probability, will not be able to fill all demands for seedlings to be set out in the autumn of this current year.

Southern Kraft Man Heads Forest Group

A. K. Dexter, of Southern Kraft Division, International Paper Co., at Canton, Miss., was elected chairman of the Gulf States Section of the Society of American Foresters in the annual meeting held in Lufkin, Texas.

Other officers named included: Paul Millsaps, extension forester, State College, Miss., vice chairman; George Cunningham, U. S. Forest Service, Jackson, Miss., secretary-treasurer. Ninety members of the organization from Texas, Louisiana and Mississippi participated.

Southern Kraft Office

H. H. Klickinger is manager, and Joseph Carey office manager, of the pulpwood acquisition office opened by Southern Kraft Division, International Paper Co., at Marion, S. C. Both pine and hardwood pulpwood will be acquired.

Hardenbrook Elected Director of Union Bag

Donald J. Hardenbrook, vice president of Union Bag & Paper Corp., has been elected a director. His responsibilities have been enlarged to include industrial and public relations, the company's woodlands division, and the various service departments including traffic, purchasing, legal and accounting.

Asbestos Supply Companies Win National Awards

Winning of two national advertising awards by the Asbestos Supply Companies—a firm often represented in this magazine—has been announced by headquarters of the Affiliated Advertising Agencies Network, a group of 28 independently owned advertising agencies located in major U. S. cities.

The awards were made through the Network's Seattle affiliate, James R. Lunke & Associates, representing the firm honored.

Asbestos Supply Companies' ABSCO News was selected from all dealer house organs entered throughout the nation as being the most outstanding. The other award was in recognition of unusual and effective handling of a double-postcard mailer.

Union Bag to Build Corrugated Container Plant

Construction of a plant for the production of kraft corrugated shipping containers has been announced by Alexander Calder, president, Union Bag & Paper Corp. The new unit will be adjacent to the company's mill at Savannah, Ga., and will contain approximately 160,000 square feet.

The project will call for an investment of $3,000,000, and is scheduled for operation next January.

Calvin A. Agar, who as head of Agar Manufacturing Corp. has been well known in the container trade, has been retained by Union Bag to direct the new facility.

Lamb of Oxford Heads TAPPI Group

E. L. Lamb, assistant director of research, Oxford Paper Co., Rumford, Maine, is the new chairman of the Maine-New Hampshire section of TAPPI.

At the June 28-29 meeting at Rangeley Lakes, Maine, other officers elected were:

J. L. Parsons, research director, Hollingsworth & Whitney Co., Winslow, Me.

H. E. Pratt, Pejebscot Paper Co., Brunswick, Me.

St. Regis Kraft Pulp Mill Bleaching 50%

The increase of bleach pulp production at the St. Regis Paper Company, Kraft Pulp Division, Tacoma, Washington, was of short duration, and according to Walter DeLong, vice president and manager, the bleach production at the plant is back to 150 tons daily—half of the mill capacity.

A larger proportion of the pulp output had been bleached in recent weeks, as reported in this magazine a month ago.

$500,000 Expansion at Western Waxed Paper Co.

A $500,000 expansion and streamlining program is being carried out at Western Waxed Paper Co., North Portland, Ore., division of Crown Zellerbach Corp.

Machinery ordered several years ago and now arriving, will permit expansion of waxed paper converting processes and gummed tape manufacture, according to C. L. Dilling, resident manager.

A one-story 155x240-ft. concrete plant addition and new office are being built.

STEBBINS

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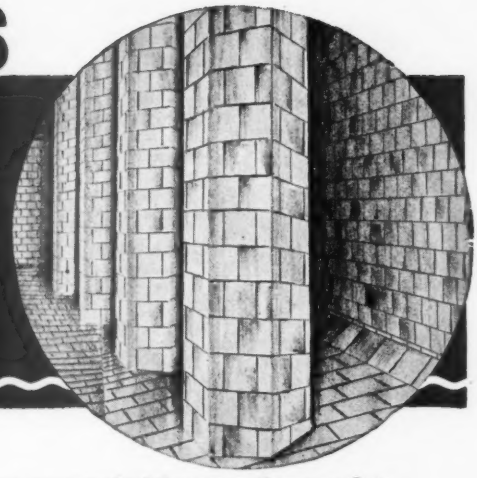

Stebbins linings are economical because the complete installation; materials used, design, and construction are all engineered by pulp and paper mill lining experts. Stebbins gives you all this in one service, involving: (1) an analysis of your needs, (2) a design for service and durability, (3) a construction for economy and efficiency. One contract, one responsibility covers the complete installation.

For quality linings — consult Stebbins.

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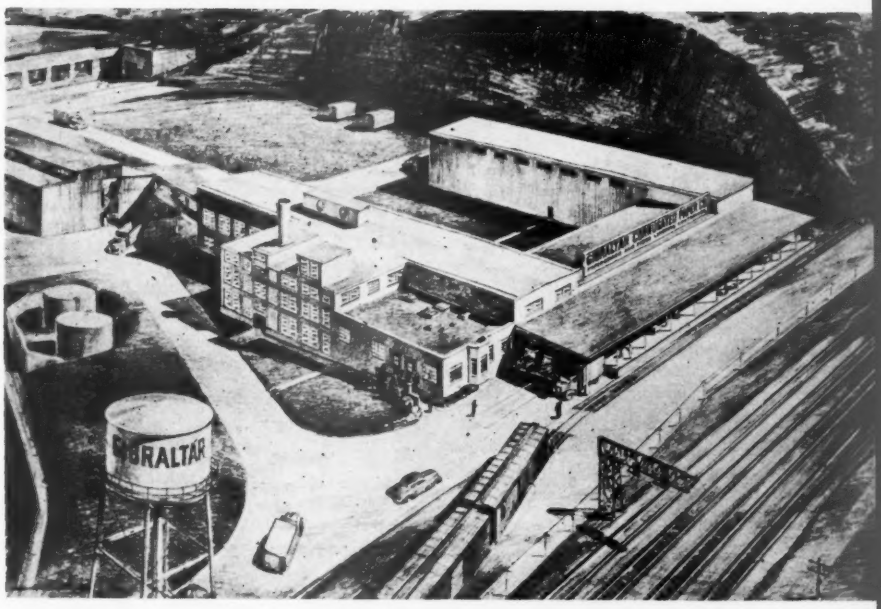
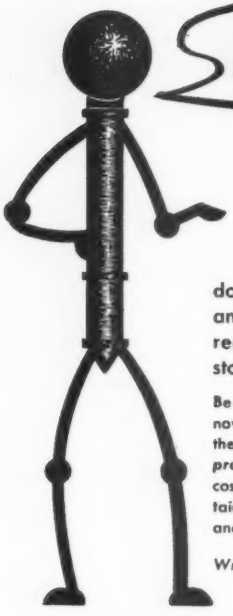


Above is architect's drawing of new $2,000,000 mill soon to be completed by Gibraltar Corrugated Paper Co., Inc., Nor Bergen, N. J. H. L. Joachim, Vice President, indicated to PULP & PAPER INDUSTRY during recent interview at mill that he expected it to be in operation in October. Inasmuch as construction was begun only in Jan. 1946, this is unusual achievement. A 152-inch Bagley & Sewall board machine is now being set up in completed mill buildings and other installations being completed include pulpers and Emerson jordans and other completely new and modern board machinery. Gibraltar has been operating a large converting plant on North Bergen site many years. New mill ties in with that operation.
Mr. Joachim is in charge. T. B. McConnell is Plant Engineer; J. J. Fiori, Paper Mill Superintendent, and F. E. Mullins, Assistant Engineer.



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To obtain further information, submit complete personal data, education and engineering experience. Reply Box 35, Pulp & Paper Industry, 71 Columbia St., Seattle 4, Wash.

WANTED: One Paper Machine complete, including stock preparation equipment, approximately 60 to 80 tons in 24 hours, trimming 84" to 114", cylinder machine preferred. Advise anything you have to offer. The Cellotex Corporation, 120 So. LaSalle Street, Chicago 3, Ill.

WANTED IMMEDIATELY—Napkin, towel, toilet, or shelf paper, etc., converting machinery. Address: P. O. Box 158 Gardner, Mass.

To Extend Mills

E. B. Eddy Co. of Hull, Quebec, has purchased 130 acres of land between Gatineau Point and Gatineau Mills as a first step in extending the Eddy mills beyond the city limits of Hull.

The move is said to be in line with recommendations of Jacques Greber, architect engaged in town planning of Ottawa, who advocates removal of industrial plants from the area.

Copies of Our "Ancestor" Wanted in Tuscaloosa

The Department of Chemical Engineering, University of Alabama, is interested in locating the first 15 complete volumes (1927-1942) of PACIFIC PULP & PAPER INDUSTRY, predecessor to PULP & PAPER INDUSTRY, and would like to have anyone desiring to donate one or more of these volumes, to get in touch with them at Tuscaloosa, Alabama.

Sacramento Promotions

L. J. Doherty, manager of the Sacramento, Calif., division, Zellerbach Paper Co., has announced promotion of Charles A. Gimblett to general sales manager; of Edmond Morgan to manager of the wrapping paper department; and of Daniel J. Sullivan to manager of the printing paper department.

Mr. Morgan recently returned from serving as a colonel of infantry in major engagements in the Philippines and Pacific theater.

Bowater's Newfoundland To Increase Capacity

In addition to installing a new four-roll machine in its Corner Brook newsprint mill, Bowater's Newfoundland Pulp & Paper Mills, Ltd., plan to step up their existing plant so that effective capacity will be increased by 12,000 to 15,000 tons annually.

When the present expansion is completed, the Newfoundland mill will rank among the biggest producers in the world with a total annual saleable output of pulp and paper in excess of 355,000 tons.

Installation of the new machine capacity and other new developments, costing more than $7,000,000, will provide employment for an additional 1000 men in the mill and the woods.

The new machine will be in production by 1938.

Developments For New Ontario Mill

Charles H. Sage, vice president of Kimberly-Clark Corp., at a recent dinner meeting in Port Arthur, Ont., said his company had appropriated an additional $1,000,000 for the layout of a townsite east of Schreiber, Ont., to house employes of the new mill of LongLac Pulp & Paper Co.

Kimberly-Clark has already built four townsites elsewhere and the new one near Schreiber will benefit from the experience gained in building its predecessors, said Mr. Sage.

The mill itself will be built about one and a half miles north of the C.P.R. tracks; it will be housed in an L-shaped building insulated with Kimberly-Clark's processed material.

Up to 1,000 men will be working on construction this year and 2,000 next year, but it will be several years before the project is in full operation, according to Mr. Sage.

Sorg Paper Co. Executives at Mellon

J. A. Aull, Jr., of Middletown, O., president of Sorg Pulp Co., and H. C. Lange, director, paid a visit to British Columbia in July and, accompanied by General Manager Hugh Lewis, spent a weekend at the Port Mellon mill on Howe Sound, where an expansion program is now under way.

R. B. Rowe, technical director of Sorg Paper Co., Middletown, also visited the mill.

Iowans See Spokane Mill

Inland Empire Paper Co., Spokane (Millwood), Wash., by courtesy of the management, gave tours of instruction to three groups of students from the Iowa State College of Forestry Camp situated at Priest River, Idaho. In all 95 students inspected the operation, accompanied by the professor in charge, G. B. McDonald.

Heads Publicity Club

Arthur J. C. Underhill, public relations director for Rayonier, Incorporated, has been elected president of the Publicity Club of New York, and was recently named a director of the National Association of Public Relations Counsel, Inc., and named editor of its monthly bulletin *Public Relations Topics.*